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# ANNUAL REPORT

OF THE

## SUPERINTENDENT

OF THE

# CITY WATER WORKS

TO THE

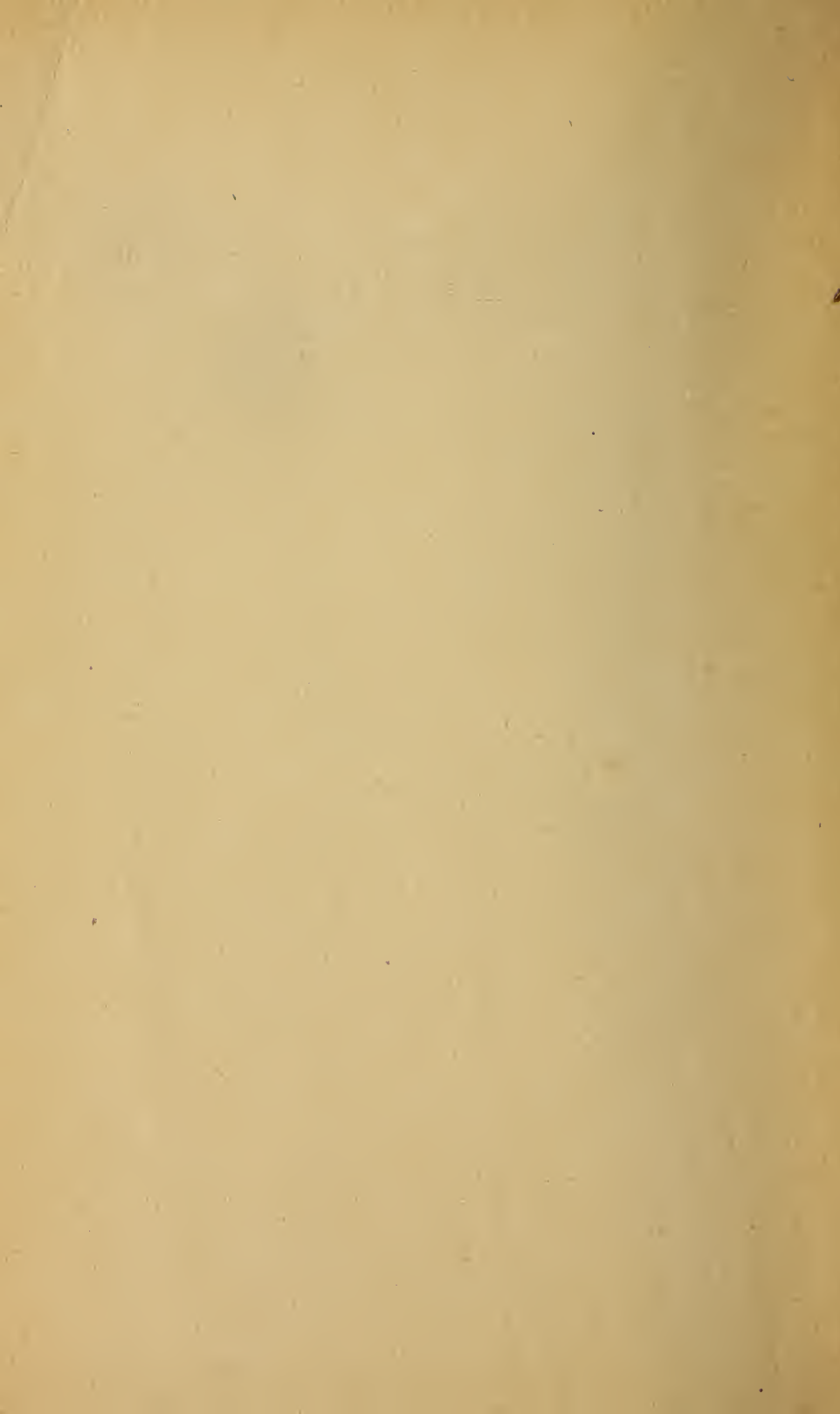
MAYOR OF THE CITY

FOR THE

Year Ending December 31, 1908

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RICHMOND, VA. :  
CLYDE W. SAUNDERS, CITY PRINTER.  
1909

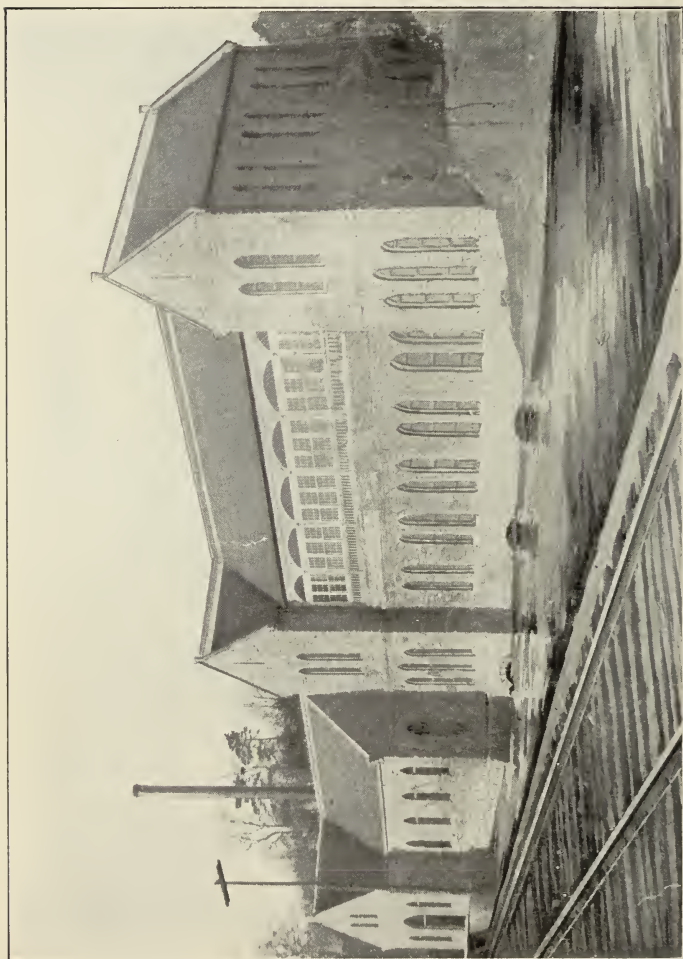




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*Edwin. V. Eyzekiel.*

*Richmond, Va.*



NEW PUMP-HOUSE.

ANNUAL REPORT  
OF THE  
SUPERINTENDENT  
OF THE  
CITY WATER WORKS

TO THE  
MAYOR OF THE CITY

FOR THE

Year Ending December 31, 1908

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RICHMOND, VA.:  
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## COMMITTEE ON WATER.

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M. R. MILLS, Chairman.

S. H. COTTRELL, *Sub. Chairman.*

R. G. RENNOLDS,

BARTON H. GRUNDY,

JOHN A. CUTCHINS,

GEORGE E. WISE,

T. F. GREEN,

F. H. GARBER,

E. R. FULLER,

P. H. DONAHOE,

A. W. BENNETT.

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## OFFICERS.

---

E. E. DAVIS.....*Superintendent.*

WILLIAM LAWTON, JR.....*Assistant Superintendent.*

ALEXANDER DELANEY.....*Superintendent of Pump-House.*

J. T. VAUGHAN.....*Keeper of New Reservoir.*

R. B. WALTON.....*Keeper of Marshall Reservoir.*





# ANNUAL REPORT.

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## OFFICE OF CITY WATER WORKS,

OFFICE OF SUPERINTENDENT,

RICHMOND, VA., *December 31, 1908.*

HON. D. C. RICHARDSON,

*Mayor.*

SIR: I beg to submit the annual report of the Water Department for the year ending December 31st, 1908, which is my first annual report and the seventy-ninth year of the City Water Works.

The appropriations for the year to the department were \$179,602.44 and the unexpended balance \$20,329.34. This amount does not include the appropriation for the installation and erection of the electric pumping plant at the New Pump House, which is shown in the Appendix of Table No. 1.

The receipts for 1908, less refunded bills, were \$203,280.54 to which should be added \$29,943.92, the value of water used for municipal purposes, churches and charity, making a grand total of \$233,224.46. The disbursements were \$159,273.10, of which \$91,011.96 was for betterments, including stock on hand amounting to \$5,724.03 and \$68,261.14 for pay-rolls and repairs. The ratio of maintenance to receipts (\$203,280.54) was 33½ per cent.

I request that you study the annexed tables for a clear understanding of all details, not only for the year's work, but for full records.

### PUMP-HOUSES AND MACHINERY.

The report of the Superintendent of the Pump-Houses herewith submitted, fully explains the condition of the buildings and machinery.

Table No. 3 shows the amount of water pumped during the year, also the average daily consumption and further shows that the average for 1907 was very little less than for the year of 1908, which is brought about by the introduction of meters.

The method of determining the quantity of water is very unsatisfactory for the reason that it is estimated by the number of strokes of the pumps less the amount lost in the slip of the valves. This can only be remedied by the introduction of proper meters on the pump mains which will register the exact quantity passing from the pumps to the reservoirs.

Estimating the population at 114,000 (obtained from the census taken by our Board of Health), the daily per capita consumption is shown to be 111 gallons.

During the year the pumps at the New Pump House were overhauled and put in first-class condition, thereby greatly increasing their efficiency.

The cost of pumping by electric power was lessened by a larger consumption, the cost being \$54.85 per million gallons including interest on the plant and \$25.84 per million gallons excluding interest. The daily average consumption was 506,939 gallons, and the daily capacity 2,800,000 gallons and as the quantity consumed increases, the cost per million gallons will be reduced, as the expense of operation remains the same.

We are now installing more pumping capacity at the New Pump House by an addition to the Steam Pump building in which will be erected four centrifugal pumps of a capacity of four million gallons each per day. This work is being pushed forward as rapidly as is consistent with good workmanship. The power for driving these pumps will be furnished by electricity generated at the new electric plant to be erected at the Old Pump House, and we can use one and possibly two of these pumps with our own current from the present electric plant at the New Pump House during the construction of the new electric plant, thereby abandoning entirely the pumps at the Old Pump House and turning over the Old Pump House property to the Committee on Electricity. When this work is completed, all pumps will be at the new pumping station and all water pumped from the settling basins.

The canal and race-ways are in good condition, but I hope during the present year to change the gate rigging at the Five and Nine Mile Locks by the installation of a more modern method of raising and lowering the gates, saving both time and labor in operation.

#### RESERVOIRS.

The reservoirs, both old and new, are in good condition, but the fence at both the old and new reservoirs should be painted.

#### WATER MAINS.

During the year 47,659 feet of mains were laid, 119 valves set and 83 fire hydrants put in.

I would especially call attention to the need of a new feed main, consisting of a 36-inch main along the Boulevard from the New Reservoir to Broad street, thence along Broad street to Bowe street, connecting at this point with a 30-inch main to run along Bowe street to Marshall street and thence along Marshall street to Second street, at which point it is to connect with a 24-inch main running along Marshall street to Seventh street, connecting at each intersecting street between Lombardy and Seventh streets. This main would greatly increase, not only the pressure but the flow in time of fire, and will also increase the pressure on the north of Broad street as well as add to the pressure on the present mains south of Broad street.

Attention is also called to the need of additional fire lines, the following being some of the most important:

12-inch main in Graham street, from Broad to Leigh street.

12-inch main in Henry street, from Broad to Leigh street.

12-inch main in Leigh street, from Hancock to Second street.

12-inch main in St. Peter street, from Leigh to Coutts street.

10-inch main in Baker street, from Second to Seventh street.

12-inch main in Twenty-seventh street, from Broad to Clay street.

8-inch main in Hospital street, from Second to Fifth street.

8-inch main in Seventeenth street, from Hospital to Fairfield street.

10-inch main in Pine street, from Albemarle to Holly street.

10-inch main in Cedar street, from Grace to Kensington street.

10-inch main in Third street, from Cary to Arch street.

16-inch main in Boulevard, from Ivy to alley south of Broad street.

These lines will furnish a much needed increase of supply during time of fires.

#### METERS.

During the year 1,644 meters were put in, 1,631 of which were furnished by the city and 13 furnished and paid for by private parties, including 5 large meters for private fire connections. The total number of meters set in the city on December 31st, 1908, was 10,753; the number of taps 19,366, therefore 56 per cent. of the taps are metered.

It has been fully established that meters are the salvation of the Water Works in the prevention of leaks and waste and also of great benefit both to the water taker and the city.

#### QUALITY OF THE WATER.

Herewith is also submitted the report of the Director of the City Water Works Laboratory for the year of 1908, in which the character of water is shown to be very fair except during periods of muddy water, and I would especially call your attention to this very comprehensive report.

The examination of the creeks and streams now flowing into our canal and liable to cause pollution of the water pumped is worthy of consideration. The tests and examinations with the water let into the settling basins and the improvement accomplished by sedimentation are valuable and instructive and aid in ascertaining what may be expected when the basins are put into operation.

This report forcibly presents the importance of having and continuing to make analyses and bacteriological examination of the water.

I commend Mr. Ezekiel for the intelligent manner in which he has conducted the work.

#### SETTLING BASINS.

It is a source of exceeding regret that we are still unable to use the settling basins on account of the failure of the conduit, but we hope to have a conduit completed during the coming year, thus enabling us to give the citizens the benefit of something, which in my judgment, is the most essential thing for any city—clear water.

## RECOMMENDATIONS.

I know of nothing more important than a bountiful supply of water, both for domestic and fire service, and therefore earnestly urge the installation of the feed mains and fire lines hereinbefore mentioned, and also, as recommended by my predecessor, Mr. C. E. Bolling, the adoption of an ordinance requiring that when the street improvements are made, all water and gas mains, sewers, conduits, etc., underground shall be completed before the roadbed is constructed, leaving a finished and undisturbed surface.

## CONCLUSION.

In concluding this, my first report, I will say that my best endeavors have been put forward to bring the water works of our grand old capital city to a standard surpassed by none.

I also extend to the Committee on Water my thanks for the many kindnesses and courtesies shown me and for the assistance rendered in the execution of my recommendations.

In all the different departments of the works, the officers and men have performed their duties conscientiously and to the best interests of the city and I cheerfully commend them to you for their faithfulness to duty.

Respectfully submitted,

E. E. DAVIS,  
*Superintendent.*

## REPORT OF SUPERINTENDENT OF PUMP HOUSES.

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RICHMOND, VA., December 31, 1908.MR. E. E. DAVIS, *Superintendent of Water Works.*

SIR: I beg to submit my report of the condition of the machinery and buildings under my care, and herewith hand you a statement of the amount of water pumped into the Old and New Reservoirs during the year ending December 31st, 1908.

## OLD PUMP-HOUSE.

The machinery at the Old Pump-House is in good working condition, but requires continuous attention and repairs. The amount of water pumped from this station during the entire year was 1,413,609,811 gallons, an increase of 274,004,061 over last year. Of this amount 202,577,526 gallons were pumped into the New Reservoir made necessary at intervals during nine months of the year by the stoppage of machinery in order to make repairs at the New Pump-House. On account of high water in the river, there are times when we are compelled to supply water to the Old Reservoir from the New and this occurred once in the month of January and once in February, on which occasions 8,905,328 gallons supplied the deficiency. The buildings and grounds are in good condition.

## NEW PUMP-HOUSE.

The machinery at the New Pump-House has been thoroughly repaired during the year and is now in good condition. A new shaft, wheels and casing with other necessary repairs were supplied to Pump No. 3, a new shaft wheel and casing with repairs were also supplied to Pump No. 2. The water connection has been made between the suction pipe of the pumps and the flume, enabling us to take water supply from the flume or the forebay as necessity may require. On account of the need of stopping the pumps for repairs, and again, in order to allow the contractors to proceed with their work in the Richmond level of the canal, we were compelled to use the steam pump and also to receive assistance from the Old Pump-House in order to keep the water at the proper level in the New Reservoir.

The amount supplied by the steam pump was 139,000,000 gallons and that supplied by the old station, as stated in report of the Old Pump-House was 202,577,526 gallons.

The building is in good shape, the damage done to the windows by the blasting operations of the contractors having been repaired at a cost of about \$75.00. On account of the work now going on around the New



Pump-House, the grounds have been disfigured, and I would suggest that after the completion of the new electric pumping plant, such improvements be made as would restore the beauty and neatness of the works.

I beg to call your attention to the fact that we have no convenient place for the safe storage of oils and other lubricants. We have been obliged to store our oils in the New Pump-House building, steam pump building or store house. This is a very dangerous system, as it is a menace to the safety of these buildings to store therein the amount of highly inflammable material which it is necessary to keep on hand. I would therefore recommend that a fire-proof oil-room be built at a point isolated from other buildings. I estimate the cost to be between \$350.00 and \$400.00.

#### STEAM PUMP.

For the first time for several years the steam pump was put into operation at intervals during the months of May, June, July, August and October for the reasons enumerated in report under the heading New Pump-House. We have made numerous necessary repairs on the boilers and engines, and also made connections between pumps and new flume, in order that we may pump from either settling basin or Richmond level of the canal. The plant is now in very good working order. I would call your attention, however, to the fact that the storage coal house is very inconveniently located. I find the cost of conveying coal from the south side of the canal and storing it in this house to be about .60 per ton. I would suggest that a new house be built between the south side of the steam pump building and the canal, say about 50 ft. long by 12 ft. wide, having a capacity of about 150 tons. The coal can then be unloaded from the Chesapeake & Ohio cars on the south side of canal, and conveyed by means of a narrow gauge track directly into the building, in this way materially decreasing the cost of storage. I estimate the cost of building and equipment to be from \$2,000.00 to \$2,500.00.

#### ANNEX BUILDING.

Since making my last report it has been found necessary to place a new shaft and wheel in the turbine electric plant in the annex building. It was found that the original wheel had become loose on its shaft, and worn to such condition as to be unsuitable for the required work. The plant is now in good order. The duplicate engine plant is also in excellent condition. The total amount of water pumped from the New Reservoir into the steam pipe was 185,539,680 gallons of which amount 160,459,680 gallons were pumped by the Turbine wheel and 25,080,000 gallons by the engine.

#### STAND PIPE.

The pumping machinery in the stand pipe is in satisfactory condition but I would suggest that some duplicate parts of the machinery be procured

at an early date in order to provide against possible accidents during the year.

In conclusion I beg to state my appreciation of the cheerful assistance rendered me by the foremen and men employed at both houses and the faithful and intelligent performance of their duties.

Very respectfully submitted,

A. DELANEY,  
*Superintendent of Pump-Houses.*

## LABORATORY REPORT.

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RICHMOND, VA., *February 1, 1909.*

MR. EUGENE E. DAVIS,

*Superintendent City Water Department.*

DEAR SIR: I herewith submit the annual report for the Water Department Laboratory.

The systematic examination of the public water supply of Richmond has been carried on throughout the year 1908.

Samples from the James river by the settling were collected daily (Sunday and holidays included) and examined for turbidity, color, alkalinity and oxygen consumed. The last test, oxygen consumed, was dropped on August 1, 1908, on account of my time being largely occupied in superintending the details of completion of the coagulating plant, etc., which will be referred to later. Bacteriological counts of the James river water and the "presumptive test" for the bacillus coli were made daily from the river water (Sunday and holidays excepted).

Samples were also collected daily (except Sunday and holidays) from the canal opposite the laboratory, and examined for turbidity, alkalinity and bacteria, as well as the "presumptive test" for bacillus coil.

Experiments were conducted with the basins during the year.

From May 11-16, I was absent from the laboratory to attend the meeting of the American Water Works Association in Washington, D. C. During this time samples were collected and examined on my return for turbidity and alkalinity. Work was again suspended for ten days in October, while I was out of town for the purpose of visiting laboratories and water plants through the South.

The total number of samples examined for the year from James river was 364; from the canal, 307; and 119 from the basins, making a grand total of 790 samples examined.

Complete sanitary analyses were made at intervals during the year, the last one of the river and canal being included in this report. Microscopical examinations were made of the basin water at times and will be mentioned under the head of "settling basins."

Table I gives the turbidity readings. Table II the bacteriological count, and Table III the monthly averages of these, as well as of color, alkalinity and oxygen consumed from the James river at the settling basins. Table IV, V and VI give the corresponding data for the canal water.



TABLE I.

*Daily Turbidity (Silica Scale, Parts per Million) of James River at Richmond, Va., During 1908.*

| DAY OF MONTH,<br>1908 | January | February | March | April | May | June | July | August | September | October | November | December |
|-----------------------|---------|----------|-------|-------|-----|------|------|--------|-----------|---------|----------|----------|
| 1 . . . . .           | 45      | 45       | 45    | 18    | 17  | 30   | 45   | 560    | 35        | 190     | 180      | 12       |
| 2 . . . . .           | 65      | 35       | 35    | 23    | 65  | 35   | 28   | 240    | 26        | 140     | 180      | 8        |
| 3 . . . . .           | 65      | 35       | 28    | 65    | 27  | 115  | 28   | 160    | 18        | 35      | 55       | 8        |
| 4 . . . . .           | 35      | 28       | 23    | 210   | 27  | 150  | 120  | 190    | 18        | 28      | 35       | 8        |
| 5 . . . . .           | 23      | 23       | 28    | 55    | 27  | 350  | 240  | 180    | 18        | 28      | 200*     | 3        |
| 6 . . . . .           | 18      | 65       | 35    | 45    | 28  | 170  | 310  | 35     | 18        | 17      | 35       | 3        |
| 7 . . . . .           | 35      | 23       | 55    | 23    | 28  | 200  | 360  | 35     | 520       | 12      | 18       | 12       |
| 8 . . . . .           | 270     | 33       | 24    | 18    | 65  | 140  | 360  | 28     | 380       | 12      | 12       | 125      |
| 9 . . . . .           | 540     | 23       | 240   | 28    | 75  | 120  | 400  | 45     | 250       | 12      | 8        | 115      |
| 10 . . . . .          | 400     | 23       | 180   | 28    | 200 | 35   | 230  | 35     | 35        | 17      | 160*     | 55       |
| 11 . . . . .          | 130     | 18       | 35    | 35    | 130 | 35   | 130  | 150    | 32        | 17      | 12       | 55       |
| 12 . . . . .          | 300     | 16       | 35    | 23    | 35  | 35   | 65   | 40     | 23        | 18      | 8        | 65       |
| 13 . . . . .          | 600     | 23       | 35    | 23    | 27  | 140  | 48   | 140    | 18        | 16      | 12       | 45       |
| 14 . . . . .          | 800     | 125      | 28    | 17    | 22  | 100  | 35   | 120    | 18        | 9       | 8        | 35       |
| 15 . . . . .          | 550     | 240      | 23    | 13    | 18  | 130  | 23   | 280    | 18        | 6       | 10       | 45       |
| 16 . . . . .          | 210     | 440      | 23    | 18    | 18  | 45   | 15   | 170    | 15        | 2       | 35       | 35       |
| 17 . . . . .          | 140     | 960      | 17    | 16    | 12  | 700  | 30   | 120    | 13        |         | 35       | 23       |
| 18 . . . . .          | 18      | 740      | 17    | 17    | 7   | 700  | 30   | 45     | 12        |         | 28       | 18       |
| 19 . . . . .          | 35      | 300      | 23    | 17    | 27  | 290  | 12   | 200    | 8         | 6       | 18       | 18       |
| 20 . . . . .          | 35      | 190      | 17    | 17    | 110 | 120  | 11   | 200    | 7         | 8       | 12       | 18       |
| 21 . . . . .          | 23      | 125      | 17    | 12    | 260 | 75   | 11   | 180    | 12        | 7       | 12       | 17       |
| 22 . . . . .          | 28      | 45       | 17    | 8     | 700 | 75   | 13   | 220    | 8         | 2       | 12       | 12       |
| 23 . . . . .          | 23      | 42       | 23    | 12    | 840 | 250  | 9    | 35     | 12        | 6       | 12       | 8        |
| 24 . . . . .          | 18      | 35       | 28    | 7     | 220 | 400  | 280  | 24     | 7         | 4       | 11       | 12       |
| 25 . . . . .          | 18      | 45       | 28    | 11    | 270 | 100  | 160  | 740    | 7         | 6       | 8        | 12       |
| 26 . . . . .          | 17      | 28       | 26    | 12    | 100 | 35   | 48   | 1400   | 4         | 35      | 8        | 30       |
| 27 . . . . .          | 35      | 180      | 18    | 17    | 65  | 35   | 720  | 720    | 4         | 38      | 8        | 18       |
| 28 . . . . .          | 45      | 340      | 17    | 12    | 65  | 130  | 900  | 680    | 30        | 35      | 12       | 45       |
| 29 . . . . .          | 75      | 150      | 17    | 17    | 45  | 260  | 750  | 400    | 12        | 290     | 8        | 35       |
| 30 . . . . .          | 45      | ...      | 12    | 17    | 35  | 120  | 800  | 270    | 115       | 270     | 8        | 75       |
| 31 . . . . .          | 28      | ...      | 18    | ...   | 28  |      | 420  | 180    |           | 320     | ...      | 45       |
| Ave. for month . .    | 152     | 150      | 44    | 27    | 115 | 170  | 213  | 252    | 56        | 47      | 39       | 32       |

\* Great increase of turbidity due to waves washing clay bank.

TABLE II.

*Number of Bacteria per Cubic Centimeter in Water of James River at Richmond, Va., During 1908.*

| DAY OF<br>MONTH<br>1908 | January | February | March | April | May    | June  | July  | August | September | October | November | December |
|-------------------------|---------|----------|-------|-------|--------|-------|-------|--------|-----------|---------|----------|----------|
| 1 . . . . .             | ...     | ...      | ...   | 600   | 450    | ...   | ...   | 3,100  | 220       | 310     | ...      | 360      |
| 2 . . . . .             | 1,950   | ...      | 450   | 500   | 650    | 270   | 360   |        | 110       | 110     | 900      | 350      |
| 3 . . . . .             | 1,450   | 1,650    | 1,200 | 950   | ...    | ...   | 180   | 230    | 380       | 230     | ...      | 200      |
| 4 . . . . .             | 1,100   | 900      | 2,000 | ...   | 370    | 600   | ...   | 460    | 150       | ...     | 550      | 270      |
| 5 . . . . .             | ...     | 650      | ...   | ...   | 340    | 4,500 | ...   | 400    | 220       | ...     | 1,250    | 200      |
| 6 . . . . .             | 2,300   | 850      | ...   | 540   | 450    | 950   | 6,000 | 340    | ...       | ...     | ...      | ...      |
| 7 . . . . .             | 4,700   | 550      | ...   | ...   | 570    | ...   | 1,800 | 230    | ...       | ...     | 790      | 300      |
| 8 . . . . .             | 12,500  | 1,350    | ...   | ...   | 600    | 530   | 1,300 | 190    | 630       | ...     | ...      | 11,000   |
| 9 . . . . .             | 9,700   | ...      | 2,100 | 300   | 1,900  | 450   | ...   | ...    | 550       | ...     | 120      | 1,100    |
| 10 . . . . .            | 8,000   | 570      | 950   | 330   | ...    | 350   | 320   | 380    | 300       | ...     | 800      | 800      |
| 11 . . . . .            | 2,000   | 800      | ...   | 380   | ...    | 1,600 | 280   | 620    | 380       | ...     | 240      | 1,100    |
| 12 . . . . .            | ...     | ...      | 550   | ...   | ...    | 550   | ...   | 330    | 140       | ...     | 290      | 1,250    |
| 13 . . . . .            | 2,500   | 380      | 390   | 300   | ...    | 900   | 240   | 310    | ...       | ...     | ...      | ...      |
| 14 . . . . .            | 10,500  | 1,400    | 280   | 270   | ...    | ...   | 160   | 300    | 290       | ...     | ...      | 1,000    |
| 15 . . . . .            | 8,700   | 3,500    | ...   | 280   | ...    | 500   | 210   | 320    | 170       | ...     | ...      | 1,000    |
| 16 . . . . .            | 4,500   | ...      | 550   | 230   | ...    | ...   | 120   | ...    | 120       | ...     | 900      | 1,280    |
| 17 . . . . .            | 1,400   | 25,000   | 350   | 150   | ...    | ...   | 250   | 260    | ...       | ...     | 400      | ...      |
| 18 . . . . .            | 870     | 4,500    | 700   | 240   | 210    | ...   | 190   | 550    | 90        | ...     | 550      | 1,600    |
| 19 . . . . .            | ...     | 4,300    | 250   | ...   | 480    | ...   | ...   | 450    | 110       | 160     | 650      | ...      |
| 20 . . . . .            | ...     | 3,300    | 450   | 320   | 800    | 450   | 250   | 320    | ...       | 50      | 470      | ...      |
| 21 . . . . .            | 520     | ...      | 480   | 160   | 800    | ...   | 170   | 300    | 110       | 70      | 100      | 1,200    |
| 22 . . . . .            | 1,350   | 1,150    | ...   | ...   | 6,500  | 350   | 260   | 350    | 50        | 45      | ...      | 900      |
| 23 . . . . .            | 1,300   | ...      | 550   | ...   | 10,000 | 610   | 400   | ...    | 90        | 63      | 310      | 850      |
| 24 . . . . .            | 2,500   | 1,300    | 800   | 130   | ...    | 630   | 600   | 400    | 100       | 51      | 500      | ...      |
| 25 . . . . .            | 1,500   | 2,300    | 500   | 300   | 3,500  | 320   | 450   | 580    | 200       | ...     | 470      | ...      |
| 26 . . . . .            | ...     | 1,500    | ...   | ...   | 600    | 350   | ...   | 4,900  | ...       | 570     | ...      | ...      |
| 27 . . . . .            | 5,000   | ...      | ...   | 300   | 430    | 260   | 2,500 | 5,300  | ...       | 450     | 700      | ...      |
| 28 . . . . .            | ...     | 145,000  | ...   | 400   | 340    | ...   | 4,500 | 490    | ...       | 550     | ...      | 1,250    |
| 29 . . . . .            | ...     | 7,000    | ...   | 1,100 | 250    | 3,000 | 4,500 | ...    | 230       | 480     | ...      | 1,300    |
| 30 . . . . .            | ...     | ...      | 830   | 260   | ...    | ...   | 2,900 | ...    | 470       | 1,250   | ...      | 1,550    |
| 31 . . . . .            | ...     | ...      | 650   | ...   | ...    | ...   | 2,900 | 1,020  | ...       | 1,050   | ...      | 6,400    |
| Ave. for month.         | 4,015   | 9,902    | 430   | 268   | 1,538  | 990   | 1,272 | 882    | 231       | 340     | 528      | 1,804    |

TABLE III.

*Monthly Average of Turbidity, Color, Alkalinity, Oxygen Consumed (Total, Dissolved and Suspended) and Bacteria in the James River at Richmond, Va., During 1908.*

| MONTH 1908               | Turbidity | Color | Alkalinity | Oxygen Consumed |           |           | Bacteria<br>Per c. c. |
|--------------------------|-----------|-------|------------|-----------------|-----------|-----------|-----------------------|
|                          |           |       |            | Total           | Dissolved | Suspended |                       |
| January . . . . .        | 152       | 27    | 34         | 4.1             | 1.8       | 2.3       | 4,015                 |
| February . . . . .       | 150       | 26    | 33         | 4.2             | 1.9       | 2.3       | 9,902                 |
| March . . . . .          | 44        | 23    | 37         | 2.3             | 1.8       | .5        | 430                   |
| April . . . . .          | 27        | 22    | 41         | 2.2             | 1.6       | .6        | 268                   |
| May . . . . .            | 115       | 29    | 37         | 3.4             | 1.8       | 1.6       | 1,538                 |
| June . . . . .           | 170       | 34    | 39         | 4.4             | 2.8       | 1.6       | 900                   |
| July . . . . .           | 213       | 38    | 43         | 3.8             | 2.5       | 1.3       | 1,272                 |
| August . . . . .         | 252       | 36    | 40         | . . . .         | . . . .   | . . . .   | 882                   |
| September . . . . .      | 56        | 23    | 41         | . . . .         | . . . .   | . . . .   | 231                   |
| October . . . . .        | 47        | 34    | 47         | . . . .         | . . . .   | . . . .   | 342                   |
| November . . . . .       | 39        | 25    | 45         | . . . .         | . . . .   | . . . .   | 528                   |
| December . . . . .       | 32        | 30    | 42         | . . . .         | . . . .   | . . . .   | 1,804                 |
| Yearly average . . . . . | 108       | 31.4  | 39.9       | 3.4             | 2.0       | 1.4       | 1,842                 |

TABLE IV.

*Daily Turbidity (Silica Scale, Parts per Million) of Canal Water at Richmond, Va., During 1908.*

| DAY OF MONTH,<br>1908 | January | February | March | April | May | June | July | August | September | October | November | December |
|-----------------------|---------|----------|-------|-------|-----|------|------|--------|-----------|---------|----------|----------|
| 1 . . . . .           | ...     | 28       | ...   | 27    | 19  | 59   | 35   | 460    | 35        | 200     | ...      | 12       |
| 2 . . . . .           | 65      | ...      | 35    | 23    | 38  | 35   | 35   | ...    | 26        | 115     | 180      | 9        |
| 3 . . . . .           | 65      | 35       | 28    | 45    | ... | 115  | 23   | 180    | 23        | 35      | 45       | 7        |
| 4 . . . . .           | 35      | 28       | 25    | 240   | 27  | 160  | ...  | 140    | 19        | ...     | 35       | 7        |
| 5 . . . . .           | ...     | 23       | 28    | ...   | 27  | 115  | ...  | 55     | 18        | 28      | 18       | 5        |
| 6 . . . . .           | 18      | 25       | 35    | 35    | 35  | 135  | 310  | 35     | ...       | 17      | 18       | ...      |
| 7 . . . . .           | 35      | 28       | 38    | 26    | 29  | ...  | 350  | 23     | ...       | 18      | 18       | 18       |
| 8 . . . . .           | 200     | 28       | ...   | 35    | 65  | 100  | 460  | 50     | 380       | 17      | ...      | 100      |
| 9 . . . . .           | 120     | ...      | 240   | 38    | 65  | 75   | 340  | ...    | 240       | 2       | 12       | 75       |
| 10 . . . . .          | 300     | 23       | 180   | 28    | ... | 35   | 230  | 35     | 35        | 18      | 8        | 55       |
| 11 . . . . .          | 120     | 18       | 35    | 22    | 140 | 75   | 170  | 110    | 32        | 18      | 12       | 45       |
| 12 . . . . .          | ...     | 16       | 35    | ...   | 30  | 45   | ...  | 35     | 28        | 23      | 8        | 45       |
| 13 . . . . .          | 450     | 18       | 28    | 23    | 22  | 130  | 48   | 135    | ...       | 17      | 17       | ...      |
| 14 . . . . .          | 350     | 115      | 28    | 17    | 18  | ...  | 35   | 150    | 23        | 12      | 7        | 28       |
| 15 . . . . .          | 480     | 210      | ...   | 17    | 12  | 130  | 23   | 300    | 23        | 3       | ...      | 45       |
| 16 . . . . .          | 190     | ...      | 26    | 18    | 18  | 190  | 23   | ...    | 18        | 8       | 35       | 35       |
| 17 . . . . .          | 140     | 480      | 17    | 17    | ... | 840  | 25   | 100    | 18        | ...     | 28       | 18       |
| 18 . . . . .          | 75      | 440      | 17    | 17    | 7   | 720  | 18   | 35     | 18        | ...     | 18       | 18       |
| 19 . . . . .          | ...     | 260      | 18    | ...   | 27  | 310  | ...  | 300    | 12        | 12      | 18       | 18       |
| 20 . . . . .          | ...     | 145      | 23    | 17    | 330 | 120  | 18   | 180    | ...       | 8       | 12       | ...      |
| 21 . . . . .          | 28      | 65       | 17    | 12    | 180 | ...  | 17   | 170    | 7         | 12      | 12       | 17       |
| 22 . . . . .          | 23      | 45       | ...   | 12    | 360 | 75   | 12   | 65     | 17        | 7       | ...      | 12       |
| 23 . . . . .          | 18      | ...      | 23    | 12    | 640 | 340  | 9    | ...    | 13        | 6       | 12       | 8        |
| 24 . . . . .          | 18      | 35       | 28    | 11    | ... | 280  | 550  | 24     | 18        | 12      | 11       | 8        |
| 25 . . . . .          | 18      | 23       | 28    | 12    | 290 | 65   | 330  | 85     | 12        | ...     | 11       | ...      |
| 26 . . . . .          | ...     | 75       | 19    | ...   | 120 | 35   | ...  | 180    | 12        | 35      | ...      | 12       |
| 27 . . . . .          | 35      | 150      | 18    | 17    | 65  | 35   | 900  | 120    | ...       | 75      | 12       | ...      |
| 28 . . . . .          | 45      | 300      | 17    | 11    | 65  | ...  | 500  | 250    | 18        | 35      | 12       | 18       |
| 29 . . . . .          | 75      | 140      | ...   | 15    | 45  | 170  | 760  | 350    | 14        | 150     | ...      | 18       |
| 30 . . . . .          | 45      | ...      | 17    | 12    | 35  | 100  | 800  | ...    | 145       | 210     | 8        | 18       |
| 31 . . . . .          | 28      | ...      | 18    | ...   | ... | ...  | 440  | 140    | ...       | 150     | ...      | 35       |
| Ave. for month .      | 119     | 110      | 39    | 27    | 104 | 172  | 248  | 142    | 48        | 47      | 23       | 26       |

TABLE V.

*Number of Bacteria per Cubic Centimeter in Canal Water at Richmond, Va.,  
During 1908*

| DAY OF<br>MONTH  | January | February | March | April | May   | June  | July  | August | September | October | November | December |
|------------------|---------|----------|-------|-------|-------|-------|-------|--------|-----------|---------|----------|----------|
| 1 . . . . .      | ..      | 1,200    | ...   | 670   | 550   | ...   | ...   | 3,300  | 200       | 260     | ...      | 200      |
| 2 . . . . .      | 1,500   | ...      | 350   | 450   | 420   | 400   | 160   | ...    | 210       | 190     | 550      | 500      |
| 3 . . . . .      | 950     | 1,000    | 600   | 650   | ...   | ..    | 200   | 270    | 140       | 370     | ...      | 170      |
| 4 . . . . .      | 850     | 900      | 1,500 | ...   | 400   | 850   | ...   | 250    | 310       | ...     | 350      | 290      |
| 5 . . . . .      | ...     | 800      | ...   | ..    | 340   | 2,350 | ..    | 190    | 210       | ...     | 220      | 280      |
| 6 . . . . .      | 1,750   | 650      | ...   | 410   | ...   | 1,050 | 4,000 | 450    | ...       | ...     | 330      | ...      |
| 7 . . . . .      | 6,500   | 850      | ...   | ...   | 1,250 | ...   | 1,900 | 190    | ...       | ...     | 170      | 1,200    |
| 8 . . . . .      | 7,000   | 750      | ...   | ...   | 700   | 420   | 1,000 | 290    | 900       | ..      | ...      | 1,500    |
| 9 . . . . .      | 8,500   | ..       | 1,700 | 550   | 2,500 | 400   | ...   | ...    | 650       | ...     | 120      | 7,100    |
| 10 . . . . .     | 7,500   | 550      | 950   | 280   | ...   | 320   | 460   | 430    | 400       | ...     | 170      | 1,150    |
| 11 . . . . .     | 3,200   | 700      | ...   | 430   | ...   | 3,500 | 270   | 190    | 320       | ...     | 370      | 1,250    |
| 12 . . . . .     | ..      | ...      | 350   | ...   | ...   | 450   | ...   | 260    | 650       | ...     | 190      | 1,700    |
| 13 . . . . .     | 8,500   | 310      | 350   | 360   | ...   | 400   | 400   | 300    | ...       | ..      | 360      | ...      |
| 14 . . . . .     | 7,500   | 800      | 260   | 240   | ...   | ...   | 260   | 240    | 400       | ...     | 900      | 650      |
| 15 . . . . .     | 8,500   | 4,000    | ...   | 270   | ...   | 600   | 220   | 420    | 460       | ...     | ...      | 1,250    |
| 16 . . . . .     | 3,500   | ...      | 500   | 250   | ...   | ...   | 100   | ...    | 290       | ..      | 1,300    | 640      |
| 17 . . . . .     | 1,300   | 17,000   | 380   | 220   | ...   | ...   | 160   | 360    | 140       | ...     | 900      | ...      |
| 18 . . . . .     | 900     | 5,000    | 550   | 210   | 220   | ...   | 120   | 370    | 180       | ...     | 370      | 1,500    |
| 19 . . . . .     | ...     | 4,300    | 370   | ...   | 350   | ...   | ..    | 460    | 170       | 70      | 500      | ...      |
| 20 . . . . .     | ...     | 2,400    | 400   | 190   | 4,750 | 400   | 160   | 320    | ...       | 70      | 380      | ...      |
| 21 . . . . .     | 650     | ...      | ...   | 120   | 800   | ...   | 150   | 350    | 80        | 70      | 230      | 1,000    |
| 22 . . . . .     | 1,000   | 750      | ...   | ...   | 2,300 | 350   | 200   | 290    | 200       | 34      | ...      | 900      |
| 23 . . . . .     | 1,250   | ...      | 750   | ...   | 3,500 | 500   | 170   | ...    | 80        | 43      | 300      | 660      |
| 24 . . . . .     | 1,300   | 1,300    | 550   | 270   | ...   | 650   | 650   | 350    | 110       | 41      | 450      | 880      |
| 25 . . . . .     | 1,650   | 1,400    | 400   | 280   | 5,000 | 310   | 500   | 570    | 90        | ...     | 550      | ...      |
| 26 . . . . .     | ..      | 2,500    | ...   | ...   | 700   | 320   | ...   | 1,050  | ...       | 450     | ...      | 1,450    |
| 27 . . . . .     | 5,000   | 5,300    | ...   | 400   | 430   | 300   | 1,800 | 1,450  | ...       | 620     | 650      | ...      |
| 28 . . . . .     | ...     | 130,000  | ...   | 160   | 400   | ..    | 3,200 | 950    | ..        | ..      | ..       | 1,150    |
| 29 . . . . .     | ...     | ...      | ...   | 350   | 400   | 1,600 | 3,500 | ...    | 100       | 110     | ..       | 1,100    |
| 30 . . . . .     | ...     | ...      | 550   | 270   | ...   | ...   | 2,300 | ..     | 520       | 2,400   | ...      | 900      |
| 31 . . . . .     | ...     | ..       | 550   | ...   | ...   | ...   | 3,400 | 520    | ...       | 1,050   | ..       | 3,600    |
| Ave. for month . | 3,752   | 8,293    | 614   | 334   | 1,389 | 798   | 1,053 | 552    | 259       | 412     | 445      | 1,240    |

TABLE VI.

*Monthly Averages of Turbidity, Alkalinity and Bacteria in the Canal at Richmond, Va., During 1908.*

| MONTH, 1908              | Turbidity | Alkalinity | Bacteria<br>Per C. C. |
|--------------------------|-----------|------------|-----------------------|
| January . . . . .        | 119       | 32         | 3,752                 |
| February . . . . .       | 110       | 30         | 8,293                 |
| March . . . . .          | 39        | 34         | 614                   |
| April . . . . .          | 27        | 39         | 344                   |
| May . . . . .            | 104       | 34         | 1,389                 |
| June . . . . .           | 172       | 35         | 798                   |
| July . . . . .           | 248       | 40         | 1,053                 |
| August . . . . .         | 142       | 40         | 552                   |
| September . . . . .      | 48        | 37         | 259                   |
| October . . . . .        | 47        | 44         | 412                   |
| November . . . . .       | 23        | 45         | 445                   |
| December . . . . .       | 26        | 38         | 1,240                 |
| Yearly Average . . . . . | 92        | 37.3       | 1,595                 |



## TURBIDITY.

Reviewing Table I, shows there were no lengthy periods of high turbidity during the past year. The longest spell of turbidity above 30 was during the month of June. On the 26th of August the highest turbidity of the year, 1,400 was reached.

The most interesting feature of Table I is the grouping of the turbidity periods, by which it can be shown what would have been accomplished by the settling basins. The turbid periods of January and February could have easily been passed over. Sufficient clear water could have been stored to have carried over the turbid spell of May, but during June and the first part of July the coagulating plant would have been needed. By careful management sufficiently clear water could have been taken into the basins during August to last over the turbid periods. The remaining portion of the year had very little muddy water.

An inspection of Table IV giving the canal turbidities, shows that they make a lower average than the river water throughout the year. This is due to clear water entering the canal, thus diluting the more turbid river water.

## BACTERIA.

Table II shows the number of bacteria in the James river water during 1908. It will be noticed that the highest number of bacteria occur during the winter months, which is the same as has been regularly true in the past. The commonly accepted opinion is that this is due, as stated in the laboratory report of 1905, "to the large proportion of surface water in the stream during the winter months." Table V giving the bacteriological counts of the canal water illustrates the same point. The heavy rains of May caused the bacterial counts of that month to run very high.

Table III gives the yearly averages of turbidity, color, alkalinity, oxygen consumed and bacteria. The turbidity was higher than last year. Color and alkalinity average about the same as in 1907. Oxygen consumed compared with the same period of the previous years varies very little.

The results as compared to the canal water, as given in Table VI, have been discussed under turbidity and bacteria.

*Sanitary Analyses of James River and Canal Water. Samples Collected  
December 30, 1908*

(Results expressed in parts per million.)

| Physical Examination.                                 | James River  | Canal |
|---|--------------|-------|
| Turbidity . . . . .                                   | 75           | 18    |
| Color . . . . .                                       | 25           | 35    |
| Odor { Cold . . . . .                                 | 0            | 0     |
| { Hot . . . . .                                       | 1E           | 2E    |
| Chemical Analysis.                                    |              |       |
| Nitrogen as Albuminoid Ammonia . . . . .              | .142         | .114  |
| "    " Free " . . . . .                               | .000         | .000  |
| "    " Nitrites . . . . .                             | .000         | .000  |
| "    " Nitrates . . . . .                             | .037         | .040  |
| Oxygen consumed { Total . . . . .                     | 2.5          | 4.5   |
| { Dissolved . . . . .                                 | 2.3          | 2.3   |
| { Suspended . . . . .                                 | .2           | 2.2   |
| Alkalinity . . . . .                                  | 36           | 32    |
| Chlorine . . . . .                                    | 3.5          | 3.5   |
| Total solids . . . . .                                | 184          | 105   |
| Dissolved solids . . . . .                            | 98           | 71    |
| Suspended solids . . . . .                            | 86           | 34    |
| Loss on ignition . . . . .                            | 50           | 36    |
| Fixed solids . . . . .                                | 134          | 67    |
| Bacteriological Analysis.                             |              |       |
| Bacteria per cubic centimeter . . . . .               | 1,550        | 900   |
| "Presumptive test" Bacillus coli present in . . . . . | 0.1 c. c. 0  | 0     |
|   | 1.0 c. c. 0  | †     |
|   | 10.0 c. c. 0 | †     |

The difference in turbidity of the two samples was due to the fact that the heavy snow of December 22, had about run off near Richmond. The canal, receiving clear creek water, was clearer than the river, which was becoming turbid from the thaw setting in back in the country.

These analyses can not be taken as a representative of what the water supply of Richmond is, as in a surface stream the quality of the water varies from day to day, especially in one like the James river, with a water-shed differing so greatly in its various parts.

#### CANAL WATER-SHED.

A mild outbreak of typhoid fever occurred in Richmond during January, which was traced by the Health Department to the public water supply, particularly to that part of the water supply which is pumped from the canal.

For further information on this subject, I refer you to the most comprehensive paper entitled, "Certain Conclusions Concerning Typhoid Fever in the South, as Deduced from a Study of Typhoid Fever in Richmond, Va." by Dr. E. C. Levy and Dr. A. W. Freeman. This paper was published in the Old Dominion Journal of Medicine and Surgery, volume VII. Numbers 5 and 6, November and December, 1908.



The work of this laboratory was immediately increased to keep even a more careful watch on the water supply, and investigating trips were again made over the creek water-shed, which made even clearer the danger which threatens our city at any time, from even a single case of typhoid fever on this area.

Although realizing that no immediate remedy for this was available, it seemed worth while to advise more frequent inspection of this water-shed and also, if authority for this could be found, the enforcing of protective measures in connection with the privies in this district—all of which would have furnished some slight degree of protection. This was suggested in a communication to the Committee on Water in February, but in view of the difficulties involved, the slight amount of success promised, and the fact that this entire problem would be solved when the basins would be put into operation (which was thought to be a matter of only a few months), these recommendations were not adopted.

There still remained, however, at least the hope of protecting of our water supply from any recognized cases of typhoid fever on this water-shed. The bulk of the practice in this territory being in the hands of one physician, he was seen and the situation explained to him. He agreed to make prompt report of any case of typhoid fever. This plan proved unsatisfactory as only one postal has been received from him in a year's time, and that when the patient was convalescing. Information concerning other cases, however, was received from other sources. In these instances I immediately visited the houses in which cases were present, and gave complete instructions concerning the disinfecting of excreta.

Since February 19th daily reports of the bacteriological examination (including counts and bacillus coli) and the turbidity of the river and canal water have been mailed daily to the Chief Health Officer at his request. Thus the value of the laboratory has been increased by placing this data in his hands.

#### SETTLING BASIN EXPERIMENTS.

Various experiments in operating the basins were conducted during the year. A few typical ones are here summed up.

On August 24th a water of a turbidity of 300 and a bacterial content of 450 was admitted to the basin. After eight days the turbidity was 22, a reduction of 90.2 per cent., and the bacterial content was 130, a reduction of 71 per cent.

Water with a turbidity of 17 was admitted to the basins on September 17th. A high wind following the filling of the basins caused the turbidity to rise from 17 to 28, due to the stirring up of the mud from the bottom of the basins. After eight days the water had a turbidity of 8 which was a turbidity reduction of 53 per cent., and the bacteria were reduced 63 per cent.

James river water of low turbidities will never give the large percentage of reduction in turbidity on storage that river water of a high turbidity gives. This low turbidity is due to very light matter in suspen-

sion, which will not settle out as does the heavy matter present, during a period of high water

The deposit of mud in the basins will always be likely, in times of high wind, to increase the turbidity of clear water standing in them. This can be obviated in the coagulating basins, which are provided with a concrete floor, by keeping this floor free from mud deposits. The engine and pipe line anticipated for flushing these basins will therefore be of great importance for their successful operation.

The settling basins were filled on August 24th with a water of 300 turbidity. In three days this was reduced to 130 by settling. Twelve millions gallons of this settled water was passed into the coagulating basins with the addition of 1.3 grains of alum ( $130 \times .22$  per cent.)\* per gallon.

In eighteen hours after coagulation the water had a turbidity of 8, which represented a turbidity reduction, from the original water taken into the settling basins of 97.3 per cent. and from the settled water 93.8 per cent. The bacteria content of the water as drawn from the river was 450 per cubic centimeter, and 130 per cubic centimeter as drawn from the settling basin, after storage; from the unsettled water a bacterial efficiency of 93.5 per cent. was obtained and of 77 per cent. from the settled water.

This test was conducted to show the Committee on Water, who visited the basins on August 31st, that when a sufficiently clear water could not be obtained from the settling basins, the coagulating plant would be put into operation and furnish Richmond with a clear, pure water.

#### MICROSCOPIC ORGANISMS.

Samples were frequently taken from the basins for microscopic examination. Among the most common organisms found were Nostoc, Asterionella, Aphanizomenon and Microglena.

\*Equivalent to 1.6 grains per gallon of 17 per cent. alum, which is the alum commonly used.

The growth varied from 900 to 5,000 standard units per cubic centimeter. ~~Usual~~ opportunity was afforded the growth this year, by the basins standing for weeks without change of water. Should a growth occur while the basins are in operation this would not prove serious. These organisms are not a source of disease, causing at worse a disagreeable odor and taste. In case of their occurrence they can be quickly and satisfactorily destroyed by dosing the basins with a very small amount of copper sulphate. This treatment does not in the least impair the quality of the water, but if it be thought undesirable to use this water, it could be wasted into the river, the other basin meanwhile supplying the city.

#### SETTLING BASINS.

The laboratory being on the basins offers every opportunity for familiarity with all details of work done there.

Shortly prior to the time it was expected that the basins would be put into use, attention was directed to the following matters, which were at once authorized by the Committee on Water; to have weeds cut, dirt

banks repaired, locks and chains repaired, gages adjusted and new ones erected, concrete flooring to engine house and walkway laid, dirt walks built, mixing chambers strengthened, baffles placed in gaps between two concrete basins and other little repairs. The last work done in construction was the building of a fence around the coagulating basins, thus preventing the danger of visitors falling in, as large numbers visit the plant on Sundays and holidays.

The superintending of most of this work consumed considerable of my time. A boy was appointed to assist in the laboratory for a few months, so that the routine work was kept up during the entire time.

Before the basins are put into operation a few very important additions are needed, namely, the erection of engine and pipe line previously referred to in this report, a drainage pipe from the laboratory and coagulating tanks to the river. All of these will be absolutely necessary when the basins are in use. A house should be built around the coagulating tanks and all exposed pipes should be wrapped. At present a shed is the only protection to the tanks. In winter, when the tanks will almost certainly be needed, there will be great danger of them freezing. A fence from bank to bank on the division wall between the settling and coagulating basins should be built. Under ordinary conditions it is slightly dangerous to cross the wall, but at night and when the wall is covered with sleet the risk in crossing to the laboratory is very great. All buildings need a coat of paint. When the basins are in operation it will be necessary to be able to get in immediate touch with the city at times, therefore I earnestly recommend that prior to the time the basins are put into use a regular Bell 'phone will be placed in the laboratory. I consider this essential to the success of the basins.

In concluding I wish to commend to you the two men employed on the basins. They have been courteous, faithful and intelligent at all times in the discharge of their duties.

Respectfully submitted,

EDWIN N. EZEKIEL.

*Director of Laboratory.*

TABLE No. 1.

*Appropriations and Expenditures for the Year 1908.*

| ACCOUNTS                             | Appropriations | Expended     | Balance      |
|--------------------------------------|----------------|--------------|--------------|
| Construction . . . . .               | \$ 32,500 00   | \$ 31,456 34 | \$ 1,043 66  |
| Expense . . . . .                    | 1,790 00       | 1,766 04     | 23 96        |
| New Reservoir . . . . .              | 2,170 00       | 2,049 71     | 120 29       |
| Marshall Reservoir . . . . .         | 1,620 00       | 1,617 02     | 2 98         |
| Water Department pay-rolls . . . . . | 15,340 00      | 14,807 98    | 532 02       |
| Water meters . . . . .               | 10 000 00      | 9,927 05     | 72 95        |
| Laboratory . . . . .                 | 1,200 00       | 1,144 45     | 55 55        |
| Pump-houses . . . . .                | 27 500 00      | 24,489 30    | 3,010 70     |
| Annex territory . . . . .            | 39 690 19      | 33,433 16    | 6,257 03     |
| Settling basin . . . . .             | 47,792 25      | 38,582 05    | 9,210 20     |
| Total . . . . .                      | \$179,602 44   | \$159,273 10 | \$ 20 329 34 |

*Receipts of the Water Works from January 1, 1908, to January 1, 1909.*

|  |              |                     |
|--|--------------|---------------------|
| Water rents . . . . .  | \$196,016 69 |                     |
| Fractional bills . . . . .   | 4,293 97     |                     |
| Builders' permits . . . . .  | 832 41       |                     |
| Receipts Water Works—sale of scrap, etc . . . . .  | 1,843 08     |                     |
| Delinquent meter bills . . . . .   | 663 97       |                     |
|  |              | \$203,650 12        |
| Refunded bills . . . . .   |              | 369 58              |
|  |              | <u>\$203,280 54</u> |
| Receipts . . . . .   | \$203,280 54 |                     |
| Value of water used by city not included in above . . . . .                              | 26,896 55    |                     |
| Water given to charity, churches, &c . . . . .   | 3,272 37     |                     |
|  |              | \$233,449 46        |
| Amount including betterments expended from January 1, 1908, to January 1, 1909 . . . . . |              | 159,273 10          |
| Balance . . . . .  |              | <u>\$ 74,176 36</u> |

Water rents include \$4,24.257 paid by city departments.

## APPENDIX.

Erection and installation of electric pumps at New Pump House—

|   |              |
|---|--------------|
| Appropriation . . . . .                         | \$100,000 00 |
| Amount disbursed to December 31, 1908 . . . . . | 13,485 17    |
| Balance . . . . .                               | \$ 86,514 83 |

NOTE.—The amounts expended included \$40.00 uncollected by C. & O. Ry. Co.

TABLE No. 2 (REVISED FROM 1885 TO 1909).

*Receipts, Appropriations and Disbursements from January, 1885, to January, 1909.*

| YEAR           | Receipts       | Appropriations | Expended from Appropriations | Expended for Maintenance | Expended for New Reservoir Park | Additions for Works |
|----------------|----------------|----------------|------------------------------|--------------------------|---------------------------------|---------------------|
| 1885 . . . . . | \$ 98,632 45   | \$ 75,979 39   | \$ 74,215 65                 | \$ 38,373 79             | \$ 4,174 98                     | \$ 31,666 88        |
| 1886 . . . . . | 104,805 90     | 74,633 25      | 72,059 79                    | 41,562 48                | 5,510 92                        | 24,986 39           |
| 1887 . . . . . | 111,024 17     | 58 000 00      | 57 989 19                    | 30,496 78                | . . . . .                       | 27 492 41           |
| 1888 . . . . . | 116,998 61     | 60 700 00      | 60,697 59                    | 36,379 86                | . . . . .                       | 24,317 73           |
| 1889 . . . . . | 114,696 87     | 47,200 00      | 47,200 00                    | 33,902 06                | . . . . .                       | 13,297 94           |
| 1890 . . . . . | 126,111 21     | 70,841 25      | 68,541 03                    | 35,602 47                | . . . . .                       | 32,938 56           |
| 1891 . . . . . | 134 857 49     | 58,713 70      | 58,606 83                    | 43,607 16                | . . . . .                       | 14,999 67           |
| 1892 . . . . . | 141 811 03     | 51 691 25      | 51,691 25                    | 39 280 42                | . . . . .                       | 12,410 83           |
| 1893 . . . . . | 143,868 34     | 56,841 25      | 56,821 25                    | 46 318 03                | . . . . .                       | 10,503 22           |
| 1894 . . . . . | 139,034 19     | 52,540 00      | 52,538 66                    | 41 591 14                | . . . . .                       | 10,947 52           |
| 1895 . . . . . | 139,406 66     | 54,740 00      | 49,709 59                    | 41,974 93                | . . . . .                       | 7,734 66            |
| 1896 . . . . . | 139,533 28     | 52 800 00      | 52 065 45                    | 46,683 15                | . . . . .                       | 5,382 30            |
| 1897 . . . . . | 135 272 24     | 61,750 00      | 58,963 13                    | 41,411 82                | . . . . .                       | 17 551 31           |
| 1898 . . . . . | 134 944 63     | 48,050 00      | 46,780 90                    | 34 449 07                | . . . . .                       | 12,331 83           |
| 1899 . . . . . | 142 870 28     | 49,100 00      | 44,827 73                    | 36 884 35                | . . . . .                       | 7,943 38            |
| 1900 . . . . . | 146 928 95     | 56,899 71      | 54,067 79                    | 42,762 13                | . . . . .                       | 11,305 66           |
| 1901 . . . . . | 153,074 21     | 65 567 96      | 62,855 73                    | 35,382 46                | . . . . .                       | 27 473 27           |
| 1902 . . . . . | 157 835 61     | 123,517 21     | 118,404 77                   | 36,744 50                | . . . . .                       | 81 660 27           |
| 1903 . . . . . | 162,120 28     | 76,768 50      | 71 644 98                    | 38 184 78                | . . . . .                       | * 3,460 20          |
| 1904 . . . . . | 167,068 80     | 78,385 00      | 76,475 80                    | 43 638 49                | . . . . .                       | 32,837 31           |
| 1905 . . . . . | 174,690 80     | 77,575 00      | 73,084 15                    | 45,038 93                | . . . . .                       | 28,025 22           |
| 1906 . . . . . | 190,033 44     | 74,534 65      | 71,998 83                    | 45,242 35                | . . . . .                       | 26,756 48           |
| 1907 . . . . . | 197,402 91     | 132,991 23     | 119,712 75                   | 50,082 60                | . . . . .                       | 69 630 15           |
| 1908 . . . . . | 203,280 54     | 179,602 44     | 159,273 10                   | 68 261 14                | . . . . .                       | 91,011 96           |
| Total          | \$3,475,802 89 | \$1,739,421 79 | \$1,660,225 94               | \$ 993,874 89            | \$ 9,685 90                     | \$ 656,665 15       |

NOTE—Included in betterments is stock on hand purchased in 1908 amounting to \$5,724 03.

\* Included in betterments is the amount of \$23,728.72, expended for site of settling basin.

## RECAPITULATION.

|  |                |                |
|--|----------------|----------------|
| Total amount received from October 7 1880, to January 1, 1885 . . . . .  | \$1,977,599 22 |                |
| Total amount received from January 1, 1885, to January 1, 1909 . . . . . | 3,475,802 89   |                |
|  |                | \$5,453,402 11 |
| Total amount disbursed from October 7, 1880 to January 1, 1885 . . . . . | \$3 001,196 81 |                |
| Total amount disbursed from January 1 1885 to January 1, 1909 . . . . .  | 1 660,225 94   |                |
|  |                | \$4 661,422 75 |
| Credit balance January 1, 1909 . . . . .                                 |                | \$ 791,979 36  |



*Number of Gallons of Water Pumped into the Reservoir from January 1, 1908, to January 1, 1909.*

| MONTHS              | GALLONS PUMPED BY— |               |             | TOTAL         |           |           | AVERAGE NUMBER OF GALLONS PUMPED PER DAY |           |            | TOTAL AVERAGE |      | AVERAGE WORKING HOURS PER DAY |           |            |
|---------------------|--------------------|---------------|-------------|---------------|-----------|-----------|--|-----------|------------|---------------|------|-------------------------------|-----------|------------|
|                     | Old Pumps          | New Pumps     | Steam Pump  |               |           |           | Old Pumps                                | New Pumps | Steam Pump |               |      | O Pumps                       | New Pumps | Steam Pump |
|                     |                    |               |             |               |           |           |  |           |            |               |      |                               |           |            |
| January . . . . .   | 82,732,428         | 263,440,945   | . . . . .   | 346,173,373   | 2,668,788 | 8,498,195 | . . . . .                                | . . . . . | . . . . .  | 11,166,883    | 11.1 | 17.                           | . . . . . | . . . . .  |
| February . . . . .  | 94,009,561         | 256,768,320   | . . . . .   | 350,777,881   | 3,241,709 | 8,854,080 | . . . . .                                | . . . . . | . . . . .  | 12,095,789    | 13.5 | 17.7                          | . . . . . | . . . . .  |
| March . . . . .     | 109,430,082        | 251,006,752   | . . . . .   | 360,436,814   | 3,530,002 | 8,096,992 | . . . . .                                | . . . . . | . . . . .  | 11,626,994    | 14.7 | 16.2                          | . . . . . | . . . . .  |
| April . . . . .     | 108,526,830        | 218,299,200   | . . . . .   | 356,826,030   | 3,617,561 | 8,276,640 | . . . . .                                | . . . . . | . . . . .  | 11,894,201    | 15.1 | 16.55                         | . . . . . | . . . . .  |
| May . . . . .       | 128,349,393        | 269,504,080   | 1,750,012   | 399,703,485   | 4,140,303 | 8,693,680 | . . . . .                                | 56,452    | . . . . .  | 12,800,435    | 17.2 | 17.4                          | . . . . . | . . . . .  |
| June . . . . .      | 137,705,410        | 244,449,610   | 7,749,994   | 389,904,994   | 4,990,180 | 8,148,320 | . . . . .                                | 238,333   | . . . . .  | 12,996,894    | 19.1 | 16.3                          | . . . . . | . . . . .  |
| July . . . . .      | 178,799,010        | 216,736,640   | 65,500,024  | 461,095,674   | 5,767,710 | 6,993,440 | . . . . .                                | 2,112,904 | . . . . .  | 14,874,054    | 24.  | 14.                           | . . . . . | . . . . .  |
| August . . . . .    | 143,422,678        | 233,653,120   | 24,249,998  | 411,325,796   | 4,626,538 | 7,854,778 | . . . . .                                | 782,258   | . . . . .  | 12,486,316    | 19.2 | 15.95                         | . . . . . | . . . . .  |
| September . . . . . | 100,218,240        | 289,682,400   | 39,749,998  | 389,300,640   | 3,346,608 | 9,656,080 | . . . . .                                | . . . . . | . . . . .  | 12,996,688    | 16.7 | 19.32                         | . . . . . | . . . . .  |
| October . . . . .   | 112,668,278        | 267,117,328   | . . . . .   | 419,885,604   | 3,644,138 | 8,616,688 | . . . . .                                | 1,282,258 | . . . . .  | 13,543,084    | 18.2 | 17.23                         | . . . . . | . . . . .  |
| November . . . . .  | 110,226,960        | 236,557,920   | . . . . .   | 346,784,880   | 3,674,232 | 7,885,264 | . . . . .                                | . . . . . | . . . . .  | 11,559,496    | 18.  | 15.77                         | . . . . . | . . . . .  |
| December . . . . .  | 107,220,971        | 255,979,152   | . . . . .   | 363,200,123   | 3,458,741 | 8,257,392 | . . . . .                                | . . . . . | . . . . .  | 11,716,133    | 17.2 | 16.56                         | . . . . . | . . . . .  |
| Total . . . . .     | 1,413,609,811      | 3,043,255,457 | 139,000,026 | 4,595,865,294 | 3,862,322 | 8,314,906 | . . . . .                                | 379,781   | . . . . .  | 12,557,009    | 17.  | 16.64                         | . . . . . | 1.52       |

NOTE.—Cost of pumping water per million gallons at New Pump House, \$5.86; at Old Pump House, \$3.59; by steam pump, \$11.03. Average cost per million, \$5.32.

*Number of Gallons Pumped by Electric-Motor Pumps from New Reservoir to Stand Pipe in 1908.*

| MONTHS              | Gallons<br>Per Month | Average Gallons<br>Per Day | Average Hours<br>Per Day |  |
|---------------------|----------------------|----------------------------|--------------------------|--|
| January . . . . .   | 13,363,990           | 431,290                    | 3.594                    | Total cost of Electric Plant, \$119,606.48<br>Cost of operation for 1908, \$4,794.93<br>Cost of pumping from New Reservoir to<br>Stand Pipe, including interest and de-<br>preciation, \$54.85 per million gallons<br>Cost of pumping from New Reservoir to<br>Stand Pipe, excluding interest and de-<br>preciation, \$25.84 per million gallons |
| February . . . . .  | 12,983,999           | 447,831                    | 3.732                    |  |
| March . . . . .     | 13,839,987           | 449,677                    | 3.747                    |  |
| April . . . . .     | 15,319,966           | 510,666                    | 4.255                    |  |
| May . . . . .       | 15,379,999           | 496,129                    | 4.134                    |  |
| June . . . . .      | 16,179,990           | 539,333                    | 4.494                    |  |
| July . . . . .      | 16,550,001           | 538,871                    | 4.448                    |  |
| August . . . . .    | 15,169,974           | 489,354                    | 4.077                    |  |
| September . . . . . | 15,930,000           | 531,000                    | 4.425                    |  |
| October . . . . .   | 17,559,826           | 566,446                    | 4.72                     |  |
| November . . . . .  | 16,429,980           | 547,666                    | 4.73                     |  |
| December . . . . .  | 16,719,974           | 539,354                    | 4.484                    |  |
| Total . . . . .     | 185,539,680          | 506,939                    | 4.237                    |  |

TABLE No. 4.

*Fire Mains Laid in 1908.*

| LOCATION   | Length<br>in Feet | Size<br>in Inches | Gate<br>Valves | Fire<br>Hydrants | Cost     |
|--|-------------------|-------------------|----------------|------------------|----------|
| Seventh street between Leigh and Duval streets<br>(Howitzer's Armory private line).....  | .....             | .....             | .....          | .....            | \$ 20 00 |
| Alley between Meadow and Allison streets, and<br>Monument and Park avenues.....  | 243               | 6                 | .....          | .....            | 155 39   |
| Grove avenue between Boulevard and corporation<br>line .....   | 2 881             | 6                 | 2              | 5                | 1,953 93 |
| Chaffin street between Robinson and Strawberry<br>streets .....  | 1,140             | 8                 | 1              | 2                | 1,145 36 |
| Robinson street between Main street and Floyd<br>avenue .....  | 426               | 6                 | 1              | 1                | 819 13   |
| Sycamore street between Grove avenue and Main<br>street .....  | 834               | 6                 | .....          | 1                | 538 96   |
| Park street between Grove avenue and Main<br>street .....  | 834               | 6                 | .....          | 1                | 532 42   |
| Taylor street between Randolph and Washington<br>streets .....   | 811               | 8                 | 1              | 2                | 778 78   |
| Dance street, west of Randolph street.....   | 187               | 6                 | 1              | .....            | 139 56   |
| Nicholson street between old corporation line and<br>Gilliam street .....  | 492               | 6                 | 1              | 2                | 493 49   |
| State street between old corporation line and Gil-<br>liam street .....  | 500               | 8                 | 1              | 2                | 711 82   |
| Virginia street, from alley to Railroad bridge....   | 100               | 4                 | .....          | 1                | 164 11   |
| Strawberry street between Main and southside of<br>Cary street .....   | 490               | 6                 | 2              | .....            | 369 63   |
| Twenty-eighth street between Q and S streets....   | 780               | 6                 | 1              | 2                | 722 83   |
| Twenty-seventh street between Q and R streets...   | 366               | 6                 | 1              | 1                | 290 08   |
| Elm street between Grove avenue and Main street.   | 811               | 6                 | 2              | 1                | 574 43   |
| Deep Run street between Grove avenue and Floyd<br>avenue .....   | 413               | 6                 | 1              | 1                | 292 29   |
| Coutts street between St. Paul and St. Peter<br>streets .....  | 270               | 6                 | 1              | 1                | 221 28   |
| Twenty-third street between U and corporation<br>line .....  | 624               | 6                 | 1              | 1                | 446 02   |
| Deep Run street between Floyd avenue and Main<br>street .....  | 450               | 6                 | 1              | 1                | 829 55   |
| Sheppard street between Grove avenue and Main<br>street .....  | 863               | 6                 | 2              | 2                | 528 99   |
| Temple street between Cary and Taylor streets..  | 300               | 6                 | .....          | 1                | 225 64   |
| Taylor street between Temple and Carter streets..  | 350               | 6                 | .....          | 1                | 242 08   |
| Carter and Ashland streets.....  | 36                | 8                 | 1              | .....            | 100 19   |
| Hermitage road from Broad street, north to cor-<br>poration line (paid for by Richmond Foundry<br>and Manufacturing Co., Continental Stove Co.,<br>and R. F. & P. R. R. Co., who are to be re-<br>imbursed by the city)..... | 1,631             | 12                | 3              | .....            | .....    |
| Leigh street, east of Hermitage road (R. F. &<br>P. R. R. Co., private line).....  | .....             | .....             | .....          | .....            | 20 80    |
| Cedar street between Chaffin street and north side<br>of Taylor street (Richmond Passenger & Power<br>Co., private line).....  | .....             | .....             | .....          | .....            | .....    |
| Laurel street between Grace street and alley north<br>of Grace street.....   | .....             | .....             | .....          | .....            | 31 40    |
| R and Twenty-fifth streets.....  | .....             | .....             | .....          | 1                | 47 38    |
| Eighteenth and Broad streets (Branch Public<br>Baths, private connection) .....  | .....             | .....             | .....          | .....            | 18 60    |
| Leigh street between Twenty-first and Twenty-<br>second streets .....  | 164               | 6                 | .....          | .....            | 148 38   |
| Robinson street between Ivy and Kensington<br>streets .....  | 397<br>52         | 12<br>6           | .....<br>2     | .....            | 688 64   |
| Floyd avenue, east of Park street.....   | 158               | 12                | 1              | .....            | 282 29   |
| Allen avenue from alley between Grace and Broad<br>streets and alley between Monument avenue and<br>Grace street .....   | 360               | 10                | 1              | .....            | 441 96   |
| Allison street between Monument avenue and<br>Grace street .....   | 295               | 16                | 3              | .....            | 768 34   |
| Harrison and Taylor streets.....   | .....             | .....             | 1              | .....            | 106 26   |



TABLE No. 4.—CONTINUED.

*Street Mains Laid in 1908.*

| LOCATION  | Length<br>in Feet               | Size<br>in<br>Inches   | Gate<br>Valves              | Fire<br>Hydrants            | Cost   |
|---|---------------------------------|------------------------|-----------------------------|-----------------------------|--|
| Grace street between Fifth and Sixth streets<br>(private fire connection).....  | ...                             | ...                    | ...                         | ...                         | \$ 29 15   |
| Alley, west of Boulevard between Broad and Grace<br>streets.....  | 268                             | 6                      | 1                           | ...                         | 196 36   |
| Alley between Boulevard and Deep Run streets and<br>Broad and Grace streets.....  | 173                             | 6                      | ...                         | 1                           | 142 00   |
| Clay street between Thirty-second and Thirty-fifth<br>streets.....  | 968                             | 6                      | 2                           | 1                           | 881 40   |
| Thirty-third street between Marshall and Clay<br>streets.....   | 200                             | 8                      | ...                         | 1                           | 268 57   |
| Thirty-third street between Clay and Leigh<br>streets.....  | 364                             | 8                      | 1                           | 1                           | 479 12   |
| Thirty-fourth street between Marshall and Clay<br>streets.....  | 200                             | 8                      | ...                         | 1                           | 274 52   |
| Thirty-second street between Clay and Marshall<br>streets.....  | 32                              | 12                     | ...                         | ...                         | 91 12  |
| Main street between Vine street and Boulevard...<br>Beverly street between Boulevard and Cedar<br>street.....   | 4,400                           | 6                      | 7                           | 11                          | 4,169 45   |
| Road, south of Beverly street and east of Lake at<br>William Byrd Park.....   | 1,140                           | 16                     | 3                           | ...                         | 3,905 50   |
| Leigh street between Twenty-first and Twenty-<br>second streets.....  | 541                             | 6                      | 1                           | 2                           | 528 51   |
| Robinson street between Beverly and Cary streets.<br>Beverly street between Randolph and Lady streets.<br>Broad street between Lombardy and Allen avenue.<br>Ivy street between Cedar and Robinson streets..<br>Graham street between Fulton and Marshall<br>streets..... | 195<br>910<br>194<br>169<br>400 | 6<br>6<br>6<br>6<br>6  | ...<br>3<br>...<br>2<br>... | ...<br>3<br>...<br>1<br>... | 105 63<br>1,048 56<br>178 39<br>136 50<br>407 64 |
| Louisiana street between old corporation line<br>and Gilliam street.....  | 840                             | 8                      | 2                           | 2                           | 1,164 08   |
| Chaffin street, from end of pipe west of Harrison<br>street.....  | 500                             | 8                      | 1                           | 1                           | 666 99   |
| Clay street between Thirty-fifth and Thirty-sixth<br>streets.....   | 150                             | 6                      | ...                         | ...                         | 141 16   |
| Lester street between Twenty-eighth street and<br>Williamsburg avenue.....  | 324                             | 6                      | 1                           | 1                           | 325 48   |
| Williamsburg avenue between Maple and Mill<br>streets (private connection for Gas Works)....<br>Williamsburg avenue between Lester and Orleans<br>streets.....  | 872                             | 12                     | 5                           | ...                         | 2 527 48   |
| Elm street between Williamsburg avenue and<br>Lester street.....  | 4,350                           | 12                     | 15                          | 2                           | 10 621 74  |
| Twenty-second street between Venable and Car-<br>rington streets.....   | 575<br>48                       | 8<br>6                 | 2                           | 1                           | 534 48   |
| Carrington street between Twenty-second and<br>Twenty-first streets.....  | 352                             | 12                     | 1                           | 1                           | 574 00   |
| Twenty-first street between Carrington and Q<br>streets.....  | 209                             | 12                     | 1                           | ...                         | 400 52   |
| Floyd avenue between Strawberry and Mulberry<br>streets.....  | 671                             | 12                     | 3                           | 1                           | 1,142 22   |
| Twenty-first street from Venable street, north of<br>end of pipe.....   | 1,576                           | 12                     | 8                           | 1                           | 2,561 70   |
| Alley between Thirty-third and Thirty-fourth<br>streets and between Clay and Leigh streets....<br>Alley between Thirty-fourth and Thirty-fifth<br>streets, north of Clay street.....  | 120<br>374<br>175               | 6<br>6<br>6            | ...<br>1<br>...             | ...<br>...<br>...           | 98 76<br>289 27<br>143 87                        |
| Ashland and Harrison streets.....   | ...                             | ...                    | 1                           | ...                         | 249 91   |
| Beverly street between Randolph and Washington<br>streets.....  | 489                             | 6                      | 1                           | 2                           | 405 08   |
| Vine street between Main and Cary streets.....<br>Cedar street between Floyd avenue and Main<br>street.....   | 376<br>426                      | 6<br>6                 | 1<br>...                    | ...<br>...                  | 256 51<br>265 97                                 |
| Deep Run street between Main and Cary streets..<br>Poplar street between Elm and Maple streets....<br>Henry street between Main and Grace streets....<br>Cary street between Lombardy and Temple streets..<br>Canal street between Eighth and Ninth streets....           | 166<br>305<br>692<br>198<br>282 | 6<br>6<br>10<br>6<br>6 | 1<br>1<br>2<br>2<br>...     | ...<br>1<br>...<br>...<br>1 | 130 55<br>324 63<br>853 56<br>175 71<br>343 91   |

TABLE No. 4.—CONTINUED.

*Street Mains Laid in 1908,*

| LOCATION.   | Length<br>in Feet | Size<br>in Inches | Gate<br>Valve | Fire<br>Hydrants | Cost      |
|---|-------------------|-------------------|---------------|------------------|-----------|
| Twenty-fourth street between S and T streets.....   | 360               | 6                 | 1             | 1                | \$ 279 45 |
| Alley between Franklin and Grace streets, west<br>of Mulberry street.....   | 77                | 6                 | 1             | 1                | 59 57     |
| Mulberry street between Main and Cary streets..   | 406               | 6                 | 1             | 1                | 299 86    |
| Cary street between Temple and Park streets.....  | 818               | 6                 | 1             | 1                | 585 65    |
| Cary street between Strawberry and Sycamore<br>streets.....   | 379               | 12                | 1             | 1                | 574 81    |
| Alley between Allison and Addison streets, and<br>Franklin and Grace streets (changing pipe<br>line).....                                 | 256               | 6                 | 1             | 1                | 299 17    |
| Smith street between Leigh and Catherine streets.<br>Grace street, east of Lombardy street into Rich-<br>mond college (private line)..... | 412               | 6                 | 1             | 1                | 25 65     |
| Rowland street between Main and Cary streets..  | 704               | 6                 | 2             | 1                | 307 49    |
| Alley between Addison and Cedar streets, and<br>Franklin and Grace streets.....   | 125               | 4                 | 1             | 1                | 401 68    |
| Alley between Allen avenue and Lombardy street,<br>and between Monument and Park avenues.....   | 147               | 8                 | 1             | 1                | 84 81     |
| Thirty-fifth street between Clay and Marshall<br>streets.....   | 175               | 12                | 3             | 1                | 192 57    |
| Lombardy street between Grace and Broad streets.  | 372               | 8                 | 1             | 1                | 377 98    |
| Mosby street between Venable and Carrington<br>streets.....   | 327               | 6                 | 1             | 1                | 396 19    |
| Carrington street, west of Mosby street.....  | 104               | 6                 | 1             | 1                | 289 67    |
| Beverly street between Harrison and Dobson<br>streets.....  | 396               | 8                 | 1             | 1                | 74 95     |
| Hanover avenue between Rowland and Sycamore<br>streets.....   | 412               | 6                 | 1             | 1                | 400 57    |
| Auburn avenue between Grace street and Floyd<br>avenue.....   | 72                | 6                 | 1             | 1                | 305 86    |
| Leigh street across Thirty-fourth street.....   | 72                | 6                 | 1             | 1                | 46 74     |
| M street across Thirty-fourth street.....   | 72                | 6                 | 1             | 1                | 46 74     |
| N street across Thirty-fourth street.....   | 72                | 6                 | 1             | 1                | 46 74     |
| O street across Thirty-fourth street.....   | 72                | 6                 | 1             | 1                | 46 74     |
| P street across Thirty-fourth street.....   | 72                | 6                 | 1             | 1                | 61 56     |
| Denny and Second streets.....   | 1                 | 1                 | 1             | 1                | 54 25     |
| Laurel and Holly streets.....   | 1                 | 1                 | 1             | 1                | 46 71     |
| Grace and Twenty-fourth streets.....  | 1                 | 1                 | 1             | 1                | 46 22     |
| Broad and Twenty-fourth streets.....  | 1                 | 1                 | 1             | 1                | 55 37     |
| Sixth street at alley between Leigh and Duval<br>streets.....   | 1                 | 1                 | 1             | 1                | 49 66     |
| Grace and First streets.....  | 1                 | 1                 | 1             | 1                | 74 11     |
| M and Twenty-eighth streets.....  | 1                 | 1                 | 1             | 1                | 48 91     |
| Tulip street between Venable and Carrington<br>streets.....   | 347               | 6                 | 1             | 1                | 283 73    |
|   | 47,659            | 119               | 84            | 56,959           | 04        |

Total number of taps made in 1908, 1,409; cost.....\$ 8,430 69

Total number of city meters set in 1908, 1,631; average cost, in-  
cluding labor and box, \$12.20..... 19,898 20

Total number of private meters set in 1908, 8; average cost of labor  
and material, \$2.25..... 18 00

**\$28,346 89**

NOTE—Cost of setting 5 private meters for fire protection paid by con-  
sumers, \$75.00.

TABLE No. 5.

*Showing Number of Meters on January 1, 1909.*

| MAKE                   | $\frac{1}{2}$ " | $\frac{3}{8}$ " | $\frac{1}{4}$ " | 1"  | 1 $\frac{1}{2}$ " | 2" | 3" | 4" | 6" | 8" | Total  |
|------------------------|-----------------|-----------------|-----------------|-----|-------------------|----|----|----|----|----|--------|
| Hersey . . . . .       |                 | 1,793           | 114             | 68  | 23                | 21 | 25 | 8  | 7  | 1  | 2,060  |
| Crown . . . . .        | 14              | 5               | 20              | 15  | 1                 | 2  | 7  |    |    |    | 64     |
| Nash . . . . .         |                 | 858             | 74              | 29  | 1                 | 4  | 3  |    |    |    | 969    |
| Thomson . . . . .      | 29              | 46              | 24              | 8   | 1                 | 1  | 6  |    |    |    | 115    |
| Trident . . . . .      |                 | 1,513           | 85              | 50  | 6                 | 1  | 6  | 1  | 1  |    | 1,663  |
| Lambert . . . . .      | 6               | 1,528           | 264             | 139 | 12                | 9  | 15 | 3  | 1  |    | 1,977  |
| Gem . . . . .          |                 |                 |                 |     |                   | 1  | 4  | 1  | 1  |    | 7      |
| Empire . . . . .       |                 | 1               |                 |     |                   |    |    |    |    |    | 1      |
| Worthington . . . . .  |                 | 473             | 52              | 7   | 1                 | 6  | 4  |    |    |    | 543    |
| Buffalo . . . . .      |                 | 7               | 1               |     |                   |    |    |    |    |    | 8      |
| Union Rotary . . . . . | 2               |                 | 1               | 1   |                   |    | 1  |    |    |    | 5      |
| Columbia . . . . .     |                 | 97              |                 |     |                   |    |    |    |    |    | 97     |
| Keystone . . . . .     |                 | 3,116           | 27              | 16  | 4                 | 11 |    | 1  |    |    | 3,175  |
| Crest . . . . .        |                 |                 |                 |     |                   |    | 1  | 1  |    |    | 2      |
| Torrent . . . . .      |                 |                 |                 |     |                   |    |    |    | 1  |    | 1      |
| Acorn . . . . .        |                 | 42              |                 |     |                   | 1  |    |    |    |    | 43     |
| American . . . . .     |                 | 23              |                 |     |                   |    |    |    |    |    | 23     |
| Total . . . . .        | 51              | 9,502           | 662             | 333 | 49                | 57 | 72 | 15 | 11 | 1  | 10,753 |

NOTE.—9,107 meters are owned by the city and 1,646 by private citizens.

Number of meters set in 1908: City meters, 1,631; private meters, 13—total . . . 1,644

Number of meters taken out in 1908: City meters, 78; private meters, 18—total, 96

Total addition to meters . . . . . 1,548

NOTE.—There are included in the above—

1 8" Hersey Detector Meter.

5 6" Hersey Detector Meters.

2 4" Hersey Detector Meters.

TABLE No. 6.

*Supply Mains from the Reservoirs to the City.*

|  |             |
|--|-------------|
| From Marshall Reservoir to Linden street, through Hollywood (connected to 20-inch main in Linden street), 12-inch..... | 1,539 feet  |
| From Marshall Reservoir to Linden street, through Hollywood (connected to 20-inch main in Linden street), 10-inch..... | 1,539 feet  |
| From Marshall Reservoir (west side) to Reservoir and Ashland streets, 16-inch .....                                    | 800 feet    |
| From New Reservoir north to Main street and eastward along Main street to corporation line, 30-inch.....               | 7,103 feet  |
| From north vault at New Reservoir along north and east banks of reservoir to Ashland street, 24-inch.....              | 1,073 feet  |
| From vault north side New Reservoir to stand pipe, 24-inch.....  | 598 feet    |
| From stand pipe to Beverly and Boulevard, 24-inch.....   | 691 feet    |
| From Beverly street to Ivy street, along Boulevard, 24-inch.....   | 2,851 feet  |
| Total .....  | 16,194 feet |

*Location and Size of Pump Mains.*

|  |             |
|--|-------------|
| From Old Pump-house to Marshall Reservoir, Pump No. 1, 12-inch....                   | 2,500 feet  |
| From Old Pump-house to Marshall Reservoir, Pump No. 2, 12-inch....                   | 2,500 feet  |
| From Old Pump-house to Marshall Reservoir, Pump No. 3, 8-inch....                    | 2,500 feet  |
| From Old Pump-house to Marshall Reservoir, Pump No. 4, 8-inch....                    | 2,500 feet  |
| From Old Pump-house to Marshall Reservoir, Pump No. 5, 8-inch....                    | 2,500 feet  |
| From Old Pump-house to Marshall Reservoir, Pump No. 6, 8-inch....                    | 2,500 feet  |
| *From Old Pump-house to Marshall and New Reservoir, Pumps Nos. 7 and 8, 24-inch..... | 9,700 feet  |
| From New Pumps to New Reservoir, 30-inch.....  | 3,500 feet  |
| From Steam Pump to Vault on Pipe Line, 24-inch.....                                  | 762 feet    |
| Total .....  | 28,962 feet |

\*This main is now used between New Reservoir and the City as a supply main, but can also be used as a pump main.

TABLE No. 7.

*Length and Sizes of Service Mains.*

| MAINS                   | Diameter<br>in<br>Inches | Length<br>in<br>Feet | Length<br>in<br>Miles |
|-------------------------|--------------------------|----------------------|-----------------------|
| Service Mains . . . . . | 1½                       | 2,905                | 0.55                  |
| Service Mains . . . . . | 3                        | 25,313               | 4.79                  |
| Service Mains . . . . . | 4                        | 143,863              | 27.25                 |
| Service Mains . . . . . | 6                        | 316,437              | 59.93                 |
| Service Mains . . . . . | 8                        | 30,197               | 5.72                  |
| Service Mains . . . . . | 10                       | 17,247               | 3.27                  |
| Service Mains . . . . . | 12                       | 62,121               | 11.76                 |
| Service Mains . . . . . | 16                       | 27,449               | 5.20                  |
| Service Mains . . . . . | 20                       | 8,080                | 1.53                  |
| Service Mains . . . . . | 24                       | 11,520               | 2.18                  |
| Service Mains . . . . . | 30                       | 1,928                | 0.36                  |
| Total . . . . .         |                          | 647,060              | 122.54                |



TABLE No. 8.

*Street Mains.*

| LOCATION   | Size<br>in<br>Inches | Length<br>in<br>Feet |
|--|----------------------|----------------------|
| Along the towpath of the James river and Kanawha canal west of Armory to Tredegar iron works.....    | 3                    | 1,000                |
| Along the towpath of the James river and Kanawha canal west of Sixth street to west side Armory..... | 4                    | 825                  |
| Arch street east of Fourth street.....   | 3                    | 211                  |
| Arch street west of Fourth street.....   | 3                    | 204                  |
| Arch street west of Seventh street.....  | 3                    | 187                  |
| Arch street between Seventh and Ninth streets.....   | 8                    | 672                  |
| Albemarle street east of Pine street into Penitentiary lot....                                       | 6                    | 600                  |
| Ashland and Carter streets.....  | 8                    | 36                   |
| Ashland street between Reservoir and Dobson streets.....   | 12                   | 455                  |
| Albemarle street between Belvidere and Cherry streets.....   | 6                    | 1,088                |
| Auburn avenue between Grace street and Floyd avenue.....   | 6                    | 412                  |
| Addison street between Franklin and Broad streets.....   | 6                    | 974                  |
| Adams street between Canal and Cary streets.....   | 4                    | 417                  |
| Adams street north of Cary street.....   | 6                    | 295                  |
| Adams street between Franklin and Broad streets.....   | 12                   | 778                  |
| Adams street between Broad and Leigh streets.....  | 4                    | 1,275                |
| Alley between Broad and Marshall and Bowe streets and west of Lombardy .....                         | 4                    | 360                  |
| Abigail street east of Ninth street.....   | 1½                   | 150                  |
| Ash street south of Lester street.....   | 4                    | 205                  |
| Ash street south of Dock street.....   | 3                    | 175                  |
| Alley between Boulevard and Deep Run street and south of alley between Broad and Grace streets.....  | 6                    | 173                  |
| Alley between Cedar street and the Boulevard between Grace and Broad streets.....                    | 6                    | 1,479                |
| Alley east of Boulevard and south of Hanover street.....   | 3                    | 247                  |
| Alley between Boulevard and Mulberry streets and Ivy and Kensington streets .....                    | 6                    | 400                  |
| Alley west of Allen avenue and between alley and Park avenue.  | 4                    | 178                  |
| Alley east of Allen avenue between Monument and Park avenues .....                                   | 4                    | 125                  |
| Alley north of Monument avenue between Allison and Addison streets .....                             | 6                    | 37                   |
| Alley north of Park avenue and west of Allison street.....   | 6                    | 145                  |
| Alley north of Park avenue and east of Allison street.....   | 6                    | 582                  |
| Alley between Park and Monument avenues and Allison and Meadow streets .....                         | 6                    | 243                  |
| Alley between Park avenue and Monument avenue and Allen avenue and Lombardy street.....              | 6                    | 1,629                |
| Alley between Broad and Marshall east of Adams street.....   | 4                    | 50                   |
| Alley west of Meadow street and north of Park avenue.....  | 6                    | 372                  |
| Alley between Broad and Grace and Lombardy and Addison streets .....                                 | 6                    | 2,971                |
| Alley between Broad and Grace streets and west of Boulevard.   | 6                    | 268                  |
| Alley between Monument avenue and Grace street and Lombardy street and west of Mulberry street.....  | 6                    | 4,504                |
| Alley (Shooks) between Duval and Baker streets.....  | 4                    | 336                  |
| Alley between Main and Cary streets east of Fifth street.....  | 3                    | 190                  |
| Alley between Cary and Canal and Twelfth and Thirteenth streets .....                                | 4                    | 180                  |
| Alley (Walnut) east of Seventeenth street between Main and Franklin streets .....                    | 1½                   | 80                   |
| Alley (Trueheart) between Locust and Fifteenth streets and Main and Franklin streets.....            | 4                    | 276                  |
| Alley (Trueheart) between Locust and Fourteenth streets and Main and Franklin streets.....           | 1½                   | 367                  |
| Alley (Tobacco) between Thirteenth and Fourteenth streets and Main and Franklin streets.....         | 4                    | 395                  |
| Alley between Franklin and Grace and First and Second streets.                                       | 1½ and 3             | 326                  |
| Alley between Franklin and Grace and Eighth and Ninth streets.                                       | 3                    | 97                   |
| Alley west of Seventh street between Cary and Main streets...  | 1½                   | 75                   |
| Alley (Creek) east of Fifteenth street between Cary and Main streets .....                           | 3                    | 448                  |
| Alley (Exchange) east of Fourteenth street between Cary and Main streets .....                       | 3                    | 225                  |

TABLE No. 8.—CONTINUED.

*Street Mains.*

| LOCATION  | Size<br>in<br>Inches | Length<br>in<br>Feet |
|---|----------------------|----------------------|
| Alley (Exchange) west of Fourteenth street between Cary and Main streets .....                                  | 3                    | 230                  |
| Alley (Exchange) west of Fifteenth street between Cary and Main streets .....                                   | 1½                   | 280                  |
| Alley (Eagle) west of Thirteenth street between Cary and Main streets .....                                     | 1½                   | 150                  |
| Alley east of Eighth street between Cary and Main streets....   | 3                    | 158                  |
| Alley south of Main street and west of Pear.....  | 1½                   | 250                  |
| Alley (Pink) between Broad and Marshall and Sixth and Seventh streets .....                                     | 4                    | 337                  |
| Alley between Fifth and Sixth and Federal and Crouch streets.   | 4                    | 189                  |
| Alley (Pink) north of East market.....  | 4                    | 194                  |
| Alley (Fish) between Marshall and Clay and Sixth and Seventh streets .....                                      | 3                    | 69                   |
| Alley (Fish) between Marshall and Clay and Sixth and Seventh streets .....                                      | 3                    | 200                  |
| Alley (Locust) between Main and Franklin streets.....   | 4                    | 375                  |
| Alley (Jail) between Broad and Marshall streets.....  | 4                    | 412                  |
| Alley (Spruce) south of Creek alley, between Main and Cary and Fifteenth and Seventeenth streets.....           | 1½                   | 121                  |
| Alley west of Thirteenth street between Canal and Cary streets.   | 4                    | 132                  |
| Alley between Franklin and Ross streets and east of Thirteenth street .....                                     | 3                    | 178                  |
| Alley north of Jefferson Park between Mosby and Pickett streets .....   | 3                    | 250                  |
| Alley between Thirty-third and Thirty-fourth and Clay and Leigh streets .....                                   | 6                    | 374                  |
| Alley between Thirty-fourth and Thirty-fifth streets, north of Clay street .....                                | 6                    | 175                  |
| Addison street between Park and Monument avenues.....   | 6                    | 389                  |
| Allison street between Park and Monument avenues.....   | 16                   | 310                  |
| Allison street between Monument avenue and Grace street....   | 16                   | 295                  |
| Allen avenue between alley south of Monument avenue and alley north of Monument avenue.....                     | 10                   | 469                  |
| Allen avenue from alley between Broad and Grace streets and alley between Grace street and Monument avenue..... | 10                   | 360                  |
| Accommodation street between Seventeenth and Buchanan streets .....   | 4                    | 322                  |
| Amelia street between Carter street and Male Orphan Asylum..  | 3                    | 378                  |
| Ash street between Lester and Poplar streets.....   | 4                    | 134                  |
| Beverly street between Boulevard and Cedar street.....  | 16                   | 1,140                |
| Beverly street between Dobson and Linden streets.....   | 12                   | 757                  |
| Beverly street between Linden and Belvidere streets.....  | 20                   | 1,454                |
| Beverly street between Pine and Belvidere streets.....  | 6                    | 356                  |
| Beverly street between Dobson and Washington streets.....   | 6                    | 1,790                |
| Boulevard between alley south of Broad and north side of Broad street .....                                     | 6                    | 270                  |
| Bank street between Ninth and Eleventh streets.....   | 6                    | 648                  |
| Bank street between Eleventh and Twelfth streets.....   | 3                    | 290                  |
| Byrd street between Fifth and Sixth streets.....  | 6                    | 158                  |
| Byrd street between Fifth and Sixth streets.....  | 4                    | 267                  |
| Byrd street between Ninth and Eleventh streets.....   | 8                    | 650                  |
| Byrd street between Sixth and Twelfth streets.....  | 4                    | 1,875                |
| Byrd street between Fourth and Fifth streets.....   | 3                    | 164                  |
| Byrd street between Third and Fourth streets.....   | 4                    | 320                  |
| Byrd street between First and Second streets.....   | 4                    | 267                  |
| Byrd street east of Second street.....  | 3                    | 125                  |
| Broad street between Allen avenue and Second street.....  | 6                    | 8,282                |
| Broad street between Third and Ninth streets.....   | 6                    | 1,950                |
| Broad street between Ninth and Mayo streets.....  | 4                    | 1,730                |
| Broad street between Mayo and Twenty-seventh streets.....   | 8                    | 4,575                |
| Broad street between Lombardy and Twenty-seventh streets...   | 16                   | 14,315               |
| Broad street between Twenty-seventh and Thirty-third streets.   | 4                    | 2,019                |
| Broad street between Twenty-seventh and Thirty-sixth streets.   | 12                   | 3,401                |
| Broad street between Thirty-third and Thirty-fifth streets...   | 6                    | 507                  |
| Broad street between Thirty-six and Thirty-seventh streets...   | 8                    | 404                  |
| Baldwin street between Seventeenth and Buchanan streets.....  | 4                    | 331                  |
| Rates street between Seventh and Eighth streets.....  | 4                    | 330                  |
| Baker street between Shook's alley and St. John street.....   | 6                    | 1,491                |
| Baker street between Brook avenue and Shook's alley.....  | 4                    | 407                  |

TABLE No. 8.—CONTINUED.

*Street Mains.*

| LOCATION   | Size<br>in<br>Inches | Length<br>in<br>Feet |
|--|----------------------|----------------------|
| Baker street between St. John and Third streets.....                                 | 4                    | 1,454                |
| Baker street between Third and Fourth streets.....                                   | 6                    | 343                  |
| Baker street between Fourth and Seventh streets.....                                 | 4                    | 988                  |
| Baker street, east of Seventh street.....  | 4                    | 205                  |
| Buchanan street between Venable and Carrington streets....                           | 4                    | 353                  |
| Buchanan street between Carrington and north of Richard<br>street .....              | 6                    | 1,857                |
| Beech street between Main street and Grove avenue.....                               | 12                   | 960                  |
| Beech street between Main and Beverly streets.....                                   | 4                    | 1,437                |
| Belvidere street south of Holly street.....  | 4                    | 174                  |
| Belvidere street between Holly and Cary streets.....                                 | 6                    | 2,993                |
| Belvidere street north of Cary street.....   | 3                    | 132                  |
| Belvidere street north of Main street.....   | 3                    | 354                  |
| Belvidere street south of Franklin street.....                                       | 4                    | 140                  |
| Belvidere street between Franklin and Broad streets.....                             | 6                    | 790                  |
| Belvidere street between Beverly and Madison streets.....                            | 20                   | 205                  |
| Brook avenue between Adams street and Bacon's Quarter<br>Branch .....                | 6                    | 3,101                |
| Bow street between Broad and Clay streets.....                                       | 12                   | 786                  |
| Bow street between Clay and Leigh streets.....                                       | 6                    | 516                  |
| Birch street south of Franklin street.....   | 6                    | 172                  |
| Brown street, east of Fifteenth street.....  | 4                    | 216                  |
| Burton street between Twenty-fourth and Twenty-fifth streets.                        | 4                    | 153                  |
| China street between Cherry and Belvidere streets.....                               | 6                    | 1,139                |
| Canal street between Cherry and Linden streets.....                                  | 6                    | 347                  |
| Canal street between Laurel and Jefferson streets.....                               | 6                    | 1,257                |
| Canal street between Jefferson and Fifth streets.....                                | 4                    | 2,237                |
| Canal street between Fifth and Seventh streets.....                                  | 8                    | 620                  |
| Canal street between Eighth and Ninth streets.....                                   | 6                    | 282                  |
| Canal street between Eleventh and Thirteenth streets.....                            | 4                    | 900                  |
| Canal street between Eleventh and Twelfth streets.....                               | 8                    | 339                  |
| Canal street between Tenth and Eleventh streets.....                                 | 6                    | 354                  |
| Chaffin street between Robinson and Strawberry streets.....                          | 8                    | 1,140                |
| Chaffin street between Linden and west of Harrison street....                        | 6                    | 1,163                |
| Cary street between Strawberry and Sycamore streets.....                             | 12                   | 379                  |
| Cary street between Reservoir and Park streets.....                                  | 6                    | 3,068                |
| Cary street between Reservoir and Madison streets.....                               | 24                   | 2,481                |
| Cary street between Madison and Seventh streets.....                                 | 20                   | 3,650                |
| Cary street between Cherry and First streets.....                                    | 6                    | 2,871                |
| Cary street between First and Second streets.....                                    | 4                    | 323                  |
| Cary street, east of Second street.....  | 4                    | 157                  |
| Cary street, west of Third street.....   | 6                    | 180                  |
| Cary street between Third and Fourth streets.....                                    | 6                    | 337                  |
| Cary street between Fourth and Fifth streets.....                                    | 4                    | 327                  |
| Cary street east of Fifth street.....  | 1½                   | 240                  |
| Cary street east of Sixth street.....  | 4                    | 191                  |
| Cary street between Seventh and Eleventh streets.....                                | 6                    | 1,283                |
| Cary street between Seventh and Thirteenth streets.....                              | 16                   | 1,760                |
| Cary street between Thirteenth and Twenty-fourth streets....                         | 12                   | 3,900                |
| Cary street between Eleventh and Twelfth streets.....                                | 6                    | 295                  |
| Cary street between Twelfth and Twenty-fourth streets.....                           | 3                    | 4,351                |
| Cary street between Twenty-fourth and Pear streets.....                              | 6                    | 1,188                |
| Clay street between Bowe and Tenth streets.....                                      | 6                    | 8,279                |
| Clay street between Tenth and Twelfth streets.....                                   | 10                   | 708                  |
| Clay street between Seventeenth and Eighteenth streets....                           | 4                    | 320                  |
| Clay street between Twenty-third and Twenty-fifth streets....                        | 6                    | 697                  |
| Clay street east of Twenty-fifth street.....   | 6                    | 69                   |
| Clay street between Pickett and Twenty-second streets.....                           | 6                    | 250                  |
| Clay street, west of Twenty-sixth street.....  | 4                    | 143                  |
| Clay street between Twenty-sixth and Thirty-first streets....                        | 6                    | 1,610                |
| Clay street between Thirty-second and Thirty-sixth streets...                        | 6                    | 1,292                |
| Catherine street between Harrison and Norton streets.....                            | 3                    | 377                  |
| Catherine street between Gilmer and Monroe streets.....                              | 4                    | 1,222                |
| Catherine street between Graham and Harrison streets.....                            | 4                    | 1,249                |
| Carrington street, west of Mosby street.....   | 6                    | 327                  |
| Carrington street between Twenty-second (or Scott) and<br>Twenty-first streets ..... | 12                   | 209                  |
| Carrington street, east of Twenty-fourth street.....                                 | 4                    | 175                  |
| Crouch street, west of Sixth street.....   | 4                    | 128                  |
| College street between Broad and Marshall streets.....                               | 4                    | 423                  |
| College street, north of Marshall street.....  | 1½                   | 210                  |



TABLE No. 8.—CONTINUED.

*Street Mains.*

| LOCATION  | Size<br>in<br>Inches | Length<br>in<br>Feet |
|---|----------------------|----------------------|
| Cedar street between Grove avenue and Main street.....                                      | 6                    | 834                  |
| Cedar street between Ivy and Hanover streets.....   | 12                   | 414                  |
| Cedar street between Ivy and Kensington streets.....  | 10                   | 450                  |
| Cedar street, north of Grace street.....  | 10                   | 193                  |
| Cedar street, south of Grace street.....  | 10                   | 180                  |
| Cedar street between Seventeenth and Buchanan streets.....                                  | 4                    | 372                  |
| Cedar street, east of Buchanan street.....  | 4                    | 187                  |
| Calhoun street between Brock avenue and Goddin street.....                                  | 4                    | 330                  |
| Church street, south of Holly street.....   | 4                    | 276                  |
| Church street between Holly street and Maiden Lane.....                                     | 4                    | 675                  |
| Cherry street, south of China street.....   | 6                    | 344                  |
| Cherry street between Spring and China streets.....   | 6                    | 485                  |
| Cherry street between Beverly and Spring streets.....                                       | 4                    | 862                  |
| Cherry street between Beverly and Main streets.....   | 6                    | 1,576                |
| Cherry street between Main street and Floyd avenue.....                                     | 8                    | 526                  |
| Cherry street between Floyd and Park avenues.....   | 6                    | 261                  |
| Clarke street between Jackson and Duval streets.....  | 4                    | 307                  |
| Church Hill avenue between Twenty-first and Marshall and<br>Twenty-fifth and M streets..... | 6                    | 1,928                |
| Coutts street between St. Paul and St. Peter streets.....                                   | 6                    | 270                  |
| Coutts street between St. Paul and First streets.....                                       | 4                    | 977                  |
| Coutts street between First and Second streets.....   | 6                    | 347                  |
| Creek street, east of Brook avenue.....   | 3                    | 230                  |
| Charity street between St. John and St. Paul streets.....                                   | 6                    | 308                  |
| Charity street between St. Paul and St. Peter streets.....                                  | 4                    | 300                  |
| Charity street between St. John and Second streets.....                                     | 4                    | 992                  |
| Dance street between Reservoir and Randolph streets.....                                    | 4                    | 489                  |
| Debell street between Hickory and Roane streets.....  | 4                    | 1,614                |
| Carter street between Ashland and Amelia streets.....                                       | 4                    | 187                  |
| Dance street, west of Randolph street.....  | 6                    | 883                  |
| Dance street between Reservoir and Randolph streets.....                                    | 4                    | 922                  |
| Dock street between Pear and Ash streets.....   | 6                    | 60                   |
| Dock street east of Pear street.....  | 6                    | 325                  |
| Dock street between Seventeenth and Eighteenth streets.....                                 | 8                    | 108                  |
| Dock street (south) west of Seventeenth street.....   | 4                    | 466                  |
| Dock street (north) east of Fifteenth street.....   | 3                    | 2,127                |
| Duval street between Brook avenue and First street.....                                     | 4                    | 348                  |
| Duval street between First and Second streets.....  | 6                    | 1,428                |
| Duval street between Second and Sixth streets.....  | 4                    | 332                  |
| Duval street between Sixth and Seventh streets.....   | 6                    | 1,029                |
| Deep Run street between Cary street and Grove avenue.....                                   | 6                    | 655                  |
| Dobson street between Ashland and Beverly streets.....                                      | 12                   | 45                   |
| Dobson street, east of Reservoir.....   | 6                    |                      |
| Denny street between Fulton street and Chesapeake and Ohio<br>Railway.....                  | 6                    | 1,677                |
| Denny street between Lester and Third streets.....  | 6                    | 461                  |
| Eighth street between Byrd and Arch streets.....  | 4                    | 585                  |
| Eighth street, south of Cary street.....  | 3                    | 248                  |
| Eighth street between Cary and Main streets.....  | 6                    | 400                  |
| Eighth street between Main and Franklin streets.....  | 4                    | 293                  |
| Eighth street north of Franklin street.....   | 6                    | 202                  |
| Eighth street south of Grace street.....  | 8                    | 200                  |
| Eighth street between Grace and Broad streets.....  | 8                    | 375                  |
| Eighth street between Broad and Leigh streets.....  | 4                    | 1,350                |
| Eighth street between Clay and Leigh streets.....   | 3                    | 40                   |
| Eighth street, north of Leigh street.....   | 4                    | 774                  |
| Eighth street between Preston and north of Bates street.....                                | 4                    | 409                  |
| Eighth street between Louisiana and Orleans street.....                                     | 6                    | 268                  |
| Eleventh street, south of Canal street.....   | 6                    | 269                  |
| Eleventh street, south of Byrd street.....  | 3                    | 260                  |
| Eleventh street between Main and Cary streets.....  | 4                    | 403                  |
| Eleventh street between Main and Bank streets.....  | 4                    | 266                  |
| Eleventh street between Capitol and Marshall streets.....                                   | 6                    | 585                  |
| Eleventh street, north of Marshall street.....  | 4                    | 339                  |
| Eleventh street, south of Clay street.....  | 6                    | 36                   |
| Eleventh street, north of Clay street.....  | 6                    | 416                  |
| Eighteenth street between South Dock and Trigg streets.....                                 | 8                    | 332                  |
| Eighteenth street, south of Cary street.....  | 3                    | 96                   |
| Eighteenth street, north of Cary street.....  | 6                    | 70                   |
| Eighteenth street, south of Main street.....  | 3                    | 330                  |
| Eighteenth street between Main and Franklin streets.....                                    | 3                    | 434                  |

TABLE No. 8—CONTINUED.

*Street Mains.*

| LOCATION   | Size<br>in<br>Inches | Length<br>in<br>Feet |
|--|----------------------|----------------------|
| Eighteenth street between Franklin and Venable streets.....                  | 4                    | 2,035                |
| Eighteenth street in Broad street (in connection high and low service) ..... | 4                    | 82                   |
| Elm street between Grove avenue and Main street.....                         | 6                    | 811                  |
| Elm street between Ivy street and Hanover avenue.....                        | 8                    | 440                  |
| Elm street between Park avenue and Ivy street.....                           | 8                    | 582                  |
| Elm street between Williamsburg avenue and Lester street...                  | 8                    | 575                  |
| Elm street between Williamsburg avenue and Lester street....                 | 6                    | 48                   |
| Elm street, south of Williamsburg avenue.....                                | 1½                   | 150                  |
| Elm street, south of R. & Y. R. P. bridge.....                               | 3                    | 162                  |
| Elm street between Lester and Poplar streets.....                            | 3                    | 311                  |
| Elm street, south of Lester street.....                                      | 6                    | 132                  |
| Foushee street between Byrd and Canal streets.....                           | 4                    | 327                  |
| Foushee street between Canal and Cary streets.....                           | 3                    | 179                  |
| Foushee street between Grace and Cary streets.....                           | 6                    | 1,167                |
| Foushee street between Grace and Broad streets.....                          | 4                    | 391                  |
| First street between Jackson and Duval streets.....                          | 8                    | 460                  |
| First street between Duval and Orange streets.....                           | 4                    | 1,917                |
| First street, north of Orange street.....                                    | 4                    | 142                  |
| First street, south of Rowe street.....                                      | 4                    | 228                  |
| First street between Rowe and Green streets.....                             | 4                    | 494                  |
| First street between Green and Arch streets.....                             | 6                    | 336                  |
| First street between Main and Arch streets.....                              | 4                    | 1,561                |
| First street between Main and Jackson streets.....                           | 10                   | 2,900                |
| Fourth street, south of Arch street.....                                     | 3                    | 75                   |
| Fourth street between Arch and Cary streets.....                             | 4                    | 1,200                |
| Fourth street between Cary and Marshall streets.....                         | 6                    | 1,824                |
| Fourth street between Marshall and Bates streets.....                        | 4                    | 2,625                |
| Fourth street between Denny and Orleans streets.....                         | 4                    | 901                  |
| Fourth street between Bates and Colored Almshouse.....                       | 4                    | 337                  |
| Fourth street between Colored Almshouse and Hospital street..                | 6                    | 378                  |
| Fifth street between Canal and Byrd streets.....                             | 6                    | 408                  |
| Fifth street, south of Byrd street.....                                      | 3                    | 260                  |
| Fifth street between Canal and Cary streets.....                             | 3                    | 404                  |
| Fifth street between Cary and Main street.....                               | 4                    | 412                  |
| Fifth street between Main and Marshall streets.....                          | 6                    | 1,600                |
| Fifth street between Marshall and Baker streets.....                         | 4                    | 2,227                |
| Fifth street, north of Baker street.....                                     | 4                    | 634                  |
| Fifth street, south of Hospital street.....                                  | 6                    | 1,000                |
| Fifth street between Louisiana and Orleans streets.....                      | 4                    | 276                  |
| Fourteenth street between Cary street and Mayo's bridge.....                 | 8                    | 1,082                |
| Fourteenth street, south of Cary street.....                                 | 3                    | 375                  |
| Fourteenth street, north of Cary street.....                                 | 6                    | 70                   |
| Fourteenth street, south of Main street.....                                 | 4                    | 380                  |
| Fourteenth street, north of Main street.....                                 | 3                    | 218                  |
| Fourteenth street between Franklin and Broad streets.....                    | 6                    | 815                  |
| Fifteenth street between Cary and Dock streets.....                          | 3                    | 350                  |
| Fifteenth street between Cary and Franklin streets.....                      | 6                    | 858                  |
| Fifteenth street, north of Franklin street.....                              | 3                    | 541                  |
| Fifteenth street between Brown and Marshall streets.....                     | 4                    | 737                  |
| Fifteenth street between Penlar and Washington streets.....                  | 3                    | 808                  |
| Franklin street between Madison and Sixth streets.....                       | 12                   | 2,944                |
| Franklin street between Shafer and Madison streets.....                      | 6                    | 2,240                |
| Franklin street between Sixth and Ninth streets.....                         | 6                    | 1,022                |
| Franklin street between Twelfth and Thirtieth streets.....                   | 6                    | 200                  |
| Franklin street between Thirteenth and Twenty-seventh streets,               | 12                   | 5,074                |
| Franklin street between Thirteenth and Thirty-first streets.....             | 4                    | 6,481                |
| Franklin and Lombardy streets (connecting services).....                     | 12                   | 63                   |
| Franklin street between Lombardy and Shafer streets.....                     | 12                   | 1,973                |
| Floyd avenue between Park and Mulberry streets.....                          | 12                   | 3,149                |
| Floyd avenue, east of Park street.....                                       | 12                   | 158                  |
| Floyd avenue between Laurel and Lombardy streets.....                        | 6                    | 2,676                |
| Fulton street between Lewis and State streets.....                           | 6                    | 884                  |
| Fulton street between Louisiana and Orleans streets.....                     | 4                    | 675                  |
| Federal street between St. Peter and St. John streets.....                   | 4                    | 580                  |
| Federal street between St. James and Second streets.....                     | 4                    | 675                  |
| Federal street between Fifth and Sixth streets.....                          | 4                    | 377                  |
| Fairfield street between Seventeenth and Buchanan streets....                | 4                    | 337                  |
| Grove avenue between Linden and Beech streets.....                           | 12                   | 384                  |
| Grove avenue between Lombardy and Vine streets.....                          | 16                   | 400                  |

TABLE No. 8—CONTINUED.

*Street Mains.*

| LOCATION  | Size<br>in<br>Inches | Length<br>in<br>Feet |
|---|----------------------|----------------------|
| Grove avenue between Beech and Boulevard.....                 | 6                    | 6,140                |
| Grove avenue between Boulevard and corporation line.....      | 6                    | 2,881                |
| Grace street between Addison and Cedar streets.....           | 6                    | 851                  |
| Grace street between Ryland and Ninth streets.....            | 6                    | 7,691                |
| Grace street, east of Ninth street (Capitol Square).....      | 6                    | 1,087                |
| Grace street between Fifteenth street and Shockoe creek.....  | 3                    | 156                  |
| Grace street, west of Seventeenth street.....                 | 4                    | 259                  |
| Grace street between Seventeenth and Eighteenth streets....   | 4                    | 340                  |
| Grace street between Eighteenth and Nineteenth streets.....   | 3                    | 330                  |
| Grace street between Nineteenth and Twenty-first streets..... | 6                    | 659                  |
| Grace street, west of Twenty-second street.....               | 3                    | 233                  |
| Grace street between Twenty-second and Twenty-ninth streets.. | 4                    | 2,204                |
| Gilmer street between Broad and Clay streets.....             | 6                    | 797                  |
| Gilmer street between Catherine and Leigh streets.....        | 4                    | 276                  |
| Gilmer street between Leigh and Moore streets.....            | 4                    | 466                  |
| Goddin street between Calhoun and Hickory streets.....        | 4                    | 851                  |
| Graham street between Broad and Marshall streets.....         | 6                    | 386                  |
| Graham street between Marshall and Moore streets.....         | 6                    | 1,345                |
| Government Road, south of Broad street.....                   | 12                   | 256                  |
| Graham street between Fulton and Marshall streets.....        | 8                    | 840                  |
| Green street between Belvidere and First streets.....         | 4                    | 503                  |
| Green street between Linden and Cherry streets.....           | 3                    | 224                  |
| Hanover street, east of Boulevard.....                        | 12                   | 216                  |
| Hanover street between Meadow and Lombardy streets.....       | 6                    | 1,619                |
| Hanover street between Robinson and Sycamore streets.....     | 12                   | 1,563                |
| Hanover street between Sycamore and Rowland streets.....      | 8                    | 396                  |
| Hanover street between Rowland and Walnut streets.....        | 6                    | 759                  |
| Hermitage road from Broad street, north to corporation line.. | 12                   | 1,631                |
| Hermitage road, north of Leigh street.....                    | 4                    | 493                  |
| Hancock street between Broad and Leigh streets.....           | 6                    | 1,319                |
| Hickory street between Baker and Calhoun streets.....         | 4                    | 751                  |
| Hill street between St. Paul and First streets.....           | 4                    | 990                  |
| Harrison street between Park avenue and Grace street.....     | 6                    | 951                  |
| Harrison street between Broad and Marshall streets.....       | 6                    | 338                  |
| Harrison street between Clay and Boyd streets.....            | 6                    | 1,172                |
| Henry street, north of Main street.....                       | 1½                   | 208                  |
| Henry street between Main and Broad streets.....              | 10                   | 1,131                |
| Henry street at Franklin street.....                          | 10                   | 69                   |
| Henry street between Broad and Marshall streets.....          | 6                    | 385                  |
| Henry street between Marshall and Leigh streets.....          | 4                    | 865                  |
| Harvie street between Cary street and Park avenue.....        | 6                    | 1,616                |
| Hospital street, each of Second street.....                   | 4                    | 341                  |
| Hospital street between Fourth and Seventeenth streets.....   | 4                    | 1,650                |
| Holly street between Belvidere and Laurel streets.....        | 6                    | 779                  |
| Holly street between Belvidere and Church streets.....        | 4                    | 242                  |
| Holly street between Church street and R. & A. R. R.....      | 3                    | 332                  |
| Hague street, south of Lester street to wharf.....            | 3                    | 263                  |
| Hopkins street between Nicholson and Denny streets.....       | 6                    | 314                  |
| Ivy street between Boulevard and Sycamore street.....         | 24                   | 2,332                |
| Ivy street between Sycamore street and Allen avenue.....      | 20                   | 1,482                |
| Ivy street between Robinson and Park streets.....             | 6                    | 2,761                |
| Jay street between Buchanan and corporation line.....         | 4                    | 172                  |
| Jefferson street between Main and Byrd streets.....           | 6                    | 1,250                |
| Jefferson street between Main and Franklin streets.....       | 12                   | 412                  |
| Jefferson street between Franklin and Grace streets.....      | 8                    | 412                  |
| Jefferson street between Grace and Broad streets.....         | 6                    | 398                  |
| Judah street between Leigh and Duval streets.....             | 4                    | 378                  |
| Jefferson Park, south of Mosby street.....                    | 3                    | 308                  |
| Jessamine street between Pleasants and Venable streets.....   | 4                    | 413                  |
| Jackson street between St. Peter and Second streets.....      | 6                    | 1,490                |
| Jackson street between Third and Fourth streets.....          | 6                    | 261                  |
| Jackson street, east of Fourth street.....                    | 6                    | 108                  |
| Jackson street, west of Fifth street.....                     | 3                    | 184                  |
| Kensington street between Cedar and Robinson streets.....     | 6                    | 362                  |
| Kinney street between Clay and Moore streets.....             | 6                    | 952                  |
| Lombardy street between Hanover street and Park avenue....    | 6                    | 214                  |
| Lombardy street between Park avenue and Broad street.....     | 12                   | 1,291                |
| Lombardy street between Cary and Hanover streets.....         | 6                    | 1,888                |
| Lombardy street between Grove avenue and Broad street.....    | 16                   | 1,934                |
| Linden street between Beverly street and Park avenue.....     | 6                    | 2,465                |



TABLE No. 8—CONTINUED.

*Street Mains.*

| LOCATION  | Size<br>in<br>Inches | Length<br>in<br>Feet |
|---|----------------------|----------------------|
| Linden street between Hollywood gate and Beverly street...                            | 20                   | 264                  |
| Laurel street, south of Holly street.....   | 6                    | 335                  |
| Laurel street, south of Holly street.....   | 4                    | 59                   |
| Laurel street between Holly and Grace streets.....                                    | 6                    | 4 756                |
| Leigh street between Lombardy and R. F. & P. shops.....                               | 6                    | 1 250                |
| Leigh street between R. F. & P. shops and Hermitage road...                           | 4                    | 1,267                |
| Leigh street between Lombardy and First streets.....                                  | 6                    | 5 624                |
| Leigh street between First and Sixth streets.....                                     | 4                    | 1,847                |
| Leigh street between Second and Seventh streets.....                                  | 12                   | 1,650                |
| Leigh street between Sixth and Ninth streets.....                                     | 6                    | 969                  |
| Leigh street between Ninth and Tenth streets.....                                     | 4                    | 337                  |
| Leigh street, east of Thirteenth street.....  | 3                    | 250                  |
| Leigh street between Twenty-first and Twenty-third streets...                         | 6                    | 620                  |
| Leigh street between Twenty-fifth and Twenty-eighth streets..                         | 6                    | 953                  |
| Leigh street between Twenty-ninth and Thirtieth streets.....                          | 6                    | 315                  |
| Leigh street, across Thirty-fourth street.....  | 6                    | 72                   |
| Lewis street between Williamsburg avenue and Lester street...                         | 6                    | 450                  |
| Lester street between Twenty-eighth street and Williamsburg<br>avenue .....           | 12                   | 872                  |
| Lester street between Main and Louisiana streets.....                                 | 6                    | 3,600                |
| Lester street between Louisiana and Orleans streets.....                              | 4                    | 265                  |
| Lewis street between Williamsburg avenue and Fulton street...                         | 6                    | 340                  |
| Louisiana street between Lester and Fulton streets.....                               | 6                    | 2,067                |
| Louisiana street between Fulton and corporation line.....                             | 4                    | 187                  |
| Louisiana street between old corporation line and Gilliam<br>street .....             | 8                    | 500                  |
| Meadow street between Grove avenue and Main street.....                               | 6                    | 856                  |
| Meadow street between Hanover and Ivy streets.....                                    | 6                    | 445                  |
| Meadow street between Hanover and Grove avenue.....                                   | 12                   | 448                  |
| Meadow street between Park avenue and alley north of Monu-<br>ment avenue .....       | 12                   | 563                  |
| Meadow street from alley south of Broad street to north line<br>of Broad street ..... | 12                   | 250                  |
| Main street between corporation line and Beech street.....                            | 30                   | 1,928                |
| Main street between Boulevard and Short street.....                                   | 6                    | 5 717                |
| Main street between Reservoir and Morris streets.....                                 | 6                    | 417                  |
| Main street between Beech and Third streets.....                                      | 24                   | 4,567                |
| Main street, west of Jefferson and Monroe streets.....                                | 6                    | 668                  |
| Main street between Jefferson and First streets.....                                  | 10                   | 970                  |
| Main street between First and Thirteenth streets.....                                 | 6                    | 3,900                |
| Main street between Third and Thirteenth streets.....                                 | 16                   | 3,186                |
| Main street between Thirteenth and Eighteenth streets.....                            | 4                    | 2,100                |
| Main street between Thirteenth and Twenty-eighth streets....                          | 12                   | 5,161                |
| Main street between Eighteenth and Nineteenth streets.....                            | 3                    | 326                  |
| Main street between Nineteenth and Twenty-fourth streets....                          | 6                    | 1,613                |
| Main street between Twenty-fourth and Twenty-seventh streets.                         | 8                    | 1 012                |
| Main street between Twenty-seventh and Lester streets.....                            | 6                    | 165                  |
| Main street between Twenty-ninth and Thirtieth streets.....                           | 4                    | 443                  |
| Main street, east of Thirtieth street.....  | 4                    | 85                   |
| Marshall street between Bowe and Henry streets.....                                   | 6                    | 3,432                |
| Marshall street between Henry and Monroe streets.....                                 | 4                    | 307                  |
| Marshall street between Monroe and Brook avenue.....                                  | 6                    | 737                  |
| Marshall street between Brook avenue and Adams street.....                            | 4                    | 230                  |
| Marshall street between Adams and Twelfth streets.....                                | 6                    | 4,200                |
| Marshall street between Twelfth and Thirteenth streets.....                           | 8                    | 345                  |
| Marshall street between Thirteenth and College streets.....                           | 3 and 4              | 221                  |
| Marshall street between College street and Jail alley.....                            | 4                    | 224                  |
| Marshall street between Jail alley and Nineteenth street.....                         | 4                    | 1,743                |
| Marshall street between Twentieth and corporation line.....                           | 6                    | 4 855                |
| Marshall street between Thirty-fourth and Thirty-fifth streets.                       | 6                    | 120                  |
| Marshall street between Thirty-sixth and Thirty-seventh streets.                      | 6                    | 304                  |
| Mulberry street between Main and Cary streets.....                                    | 6                    | 406                  |
| Morris street between Floyd and Grove avenues.....                                    | 6                    | 477                  |
| Morris street between Cary and Main streets.....                                      | 6                    | 480                  |
| Moore street between Lombardy and Gilmer streets.....                                 | 6                    | 2,785                |
| Moore street between Gilmer street and Brook avenue.....                              | 4                    | 242                  |
| Munford street between Broad and Marshall streets.....                                | 6                    | 388                  |
| Munford street, north of Marshall street.....   | 3                    | 105                  |
| Munford street between Marshall and Clay streets.....                                 | 4                    | 191                  |
| Munford street between Leigh street and Brook avenue.....                             | 4                    | 457                  |

TABLE No. 8—CONTINUED.

*Street Mains.*

| LOCATION   | Size<br>in<br>Inches | Length<br>in<br>Feet |
|--|----------------------|----------------------|
| Madison street between Main and Belvidere streets.....           | 20                   | 1,025                |
| Madison street between Main and Franklin streets.....            | 12                   | 449                  |
| Madison street, north of Franklin street.....                    | 6                    | 74                   |
| Madison street between Broad and Grace streets.....              | 6                    | 398                  |
| Madison street, north of Broad street.....                       | 6                    | 80                   |
| Madison street, south of Marshall street.....                    | 3                    | 297                  |
| Madison street between Marshall and Clay streets.....            | 4                    | 390                  |
| McCance street between Clay and Venable streets.....             | 4                    | 325                  |
| Mosby street between Venable and Carrington streets.....         | 8                    | 372                  |
| Mosby street between Venable and Pleasants streets.....          | 6                    | 441                  |
| Mosby street, south of Pleasants street.....                     | 4                    | 388                  |
| Mechanicsville turnpike, north of Venable street.....            | 3                    | 161                  |
| Monroe street between Broad and Marshall streets.....            | 6                    | 388                  |
| Monroe street, Marshall street to Brook avenue.....              | 4                    | 731                  |
| Monroe street, Franklin to Broad streets.....                    | 4                    | 787                  |
| Monroe street between Main and Franklin streets.....             | 6                    | 395                  |
| Mayo street between Franklin and Broad streets.....              | 6                    | 829                  |
| M street between Ninth and Tenth streets.....                    | 4                    | 325                  |
| M street west of Thirteenth street.....                          | 4                    | 195                  |
| M street between Thirteenth and Seventeenth streets.....         | 4                    | 800                  |
| M street between Twenty-first and Twenty-third streets.....      | 4                    | 764                  |
| M street between Twenty-third and Thirty-first streets.....      | 6                    | 2 731                |
| M street across Thirty-fourth street.....                        | 6                    | 72                   |
| Ninth street in Arch street.....                                 | 4                    | 30                   |
| Ninth street south of Byrd street.....                           | 4                    | 580                  |
| Ninth street north of Byrd street.....                           | 3                    | 360                  |
| Ninth street between Cary and Arch streets.....                  | 8                    | 1,361                |
| Ninth street between Cary and Clay streets.....                  | 6                    | 2,442                |
| Ninth street between Clay and Abigail streets.....               | 4                    | 1,603                |
| Nineteenth street between Cary and Franklin streets.....         | 6                    | 800                  |
| Nineteenth street between Franklin and Marshall streets.....     | 4                    | 1,166                |
| Nineteenth street north of Marshall street.....                  | 3                    | 98                   |
| Nineteenth street between R and S streets.....                   | 6                    | 375                  |
| N street between Twenty-third and Twenty-sixth streets.....      | 6                    | 1,019                |
| N street between Twenty-seventh and Thirty-first streets.....    | 6                    | 1,313                |
| N street across Thirty-fourth street.....                        | 6                    | 72                   |
| New street (alley) south of Franklin street.....                 | 4                    | 166                  |
| Norton street between Clay and Leigh streets.....                | 6                    | 511                  |
| Nicholson street between Lester and Williamsburg avenue..        | 6                    | 1,825                |
| Nicholson street between old corporation line and Gilliam street | 6                    | 492                  |
| Oak street between Moore street and corporation line.....        | 4                    | 260                  |
| O street between Twenty-fifth and Twenty-ninth streets.....      | 6                    | 1,111                |
| O street across Thirty-fourth street.....                        | 6                    | 72                   |
| Orleans street between Lester street and Fulton street.....      | 6                    | 2,228                |
| Orange street between First and St. James streets.....           | 4                    | 296                  |
| Orange street between St. John and St. Paul streets.....         | 4                    | 252                  |
| Plum street between Cary street and Park avenue.....             | 6                    | 1,763                |
| Pine street south of Holly street.....                           | 4                    | 300                  |
| Pine street between Holly and Main streets.....                  | 6                    | 3 420                |
| Pine street between Cary and Albemarle streets.....              | 10                   | 1,467                |
| Pine street north of Grace street.....                           | 6                    | 24                   |
| Park street between Grove avenue and Main street.....            | 6                    | 834                  |
| Park street between Grove avenue and Ivy street.....             | 10                   | 890                  |
| Park avenue east of Sycamore street.....                         | 16                   | 156                  |
| Park avenue between Meadow and Robinson streets.....             | 6                    | 2 417                |
| Park avenue between Allen avenue and Lombardy street..           | 16                   | 903                  |
| Park avenue between Grove avenue and Morris street.....          | 6                    | 613                  |
| Park avenue between Laurel and Shafer str.....                   | 6                    | 610                  |
| Park avenue between Shafer and Linden streets.....               | 12                   | 253                  |
| Park avenue between Vine and Park streets.....                   | 6                    | 787                  |
| Park avenue between Linden and Plum streets.....                 | 6                    | 702                  |
| Pear street between Cary and Dock streets.....                   | 6                    | 238                  |
| Preston street between Second and Fourth streets.....            | 4                    | 618                  |
| Preston street between Seventh and Eighth streets.....           | 4                    | 317                  |
| Preston street between Sixth and Seventh streets.....            | 6                    | 324                  |
| Pulliam street between Adams and Prentiss streets.....           | 4                    | 426                  |
| Pulliam street between Prentiss and Leigh streets.....           | 3                    | 512                  |
| Price street between Leigh and Duval streets.....                | 4                    | 738                  |
| Prentiss street between Clay and Pulliam streets.....            | 3                    | 291                  |
| Pleasants street between Nineteenth and Twenty-third streets..   | 4                    | 1,811                |

TABLE No. 8—CONTINUED.

*Street Mains.*

| LOCATION   | Size<br>in<br>Inches | Length<br>in<br>Feet |
|--|----------------------|----------------------|
| Pickett street between Clay and Venable streets.....   | 6                    | 1 128                |
| P street west of Twenty-sixth street.....  | 1½                   | 166                  |
| P street between Twenty-sixth and Thirtieth streets.....   | 6                    | 1,327                |
| P street across Thirty-fourth street.....  | 6                    | 72                   |
| Poplar street between Elm and Maple streets.....   | 6                    | 305                  |
| Q street between Twenty-fifth and Twenty-ninth streets.....  | 6                    | 1,330                |
| R street between Twenty-fifth and Twenty-fourth streets.....   | 6                    | 325                  |
| R street, east of Twenty-fourth street.....  | 4                    | 150                  |
| Robinson street between Beverly and Cary streets.....  | 6                    | 910                  |
| Robinson street between Kensington and Ivy streets.....  | 12                   | 397                  |
| Robinson street north of Hanover street.....   | 8                    | 220                  |
| Robinson street south of Hanover avenue.....   | 8                    | 198                  |
| Robinson street between Main street and Floyd avenue.....  | 6                    | 426                  |
| Road south of Beverly along east side of lake at William<br>Byrd Park.....                                       | 6                    | 541                  |
| Rowland street between Cary street and Park avenue.....  | 6                    | 2,610                |
| Reservoir street between Ashland and Main streets.....   | 24                   | 2,140                |
| Reservoir street south of Beverly street.....  | 6                    | 193                  |
| Revervoir street between Beverly and Chaffin streets.....  | 6                    | 388                  |
| Rowe street between Belvidere and Howard streets.....  | 4                    | 486                  |
| Randolph street between River View Cemetery and Cary street.<br>River View Cemetery east of Randolph street..... | 6                    | 3,564                |
| Ryland street north of Franklin street.....  | 3                    | 410                  |
| Ryland street between Broad and Grace streets.....   | 6                    | 31                   |
| Ryland street between Broad and Grace streets.....   | 6                    | 396                  |
| Richmond and Danville freight depot between Virginia and<br>Fourteenth streets (under freight depot).....        | 3                    | 220                  |
| Ross street between Thirteenth and Mayo streets.....   | 6                    | 746                  |
| S street or Fairmount avenue between Mechanicsville turnpike<br>and Twenty-fourth street.....                    | 6                    | 1,947                |
| Sheppard street between Grove avenue and Main street.....  | 6                    | 863                  |
| Sycamore street between Grove avenue and Ivy street.....   | 12                   | 909                  |
| Sycamore street between Ivy street and Park avenue.....  | 16                   | 437                  |
| Strawberry street between Main and Park avenue.....  | 6                    | 2,303                |
| Strawberry street between Main street and southside of Cary<br>street.....                                       | 6                    | 490                  |
| Short street between Cary street and Floyd avenue.....   | 6                    | 915                  |
| Spring street between Belvidere and Cherry streets.....  | 6                    | 1,009                |
| Spring street east of Belvidere street.....  | 6                    | 300                  |
| Shafer street between Park avenue and Broad street.....  | 12                   | 1,241                |
| Smith street between Broad and Marshall streets.....   | 6                    | 384                  |
| Smith street between Leigh and Catherine streets.....  | 6                    | 256                  |
| Second street between Arch and Main streets.....   | 4                    | 1,557                |
| Second street between Main and Grace streets.....  | 6                    | 772                  |
| Second street between Broad and Grace streets.....   | 4                    | 392                  |
| Second street between Broad and Duval streets.....   | 12                   | 2,361                |
| Second street between Duval and Bates streets.....   | 10                   | 750                  |
| Second street between Bates and Hospital streets.....  | 8                    | 879                  |
| Second street between Marshall and north of Hospital.....  | 4                    | 3 740                |
| Second street between Hospital and S. A. L. R. R.....  | 6                    | 567                  |
| Second street (in Rocketts) east of Louisiana street.....  | 6                    | 436                  |
| Second street (in Rocketts) west of Louisiana street.....  | 4                    | 316                  |
| Sixth street between Orleans and Denny streets.....  | 4                    | 712                  |
| Sixth street south of Byrd street.....   | 3                    | 354                  |
| Sixth street between byrd and Cary streets.....  | 6                    | 700                  |
| Sixth street between Main and Cary streets.....  | 6                    | 452                  |
| Sixth street between Main and Grace streets.....   | 6                    | 787                  |
| Sixth street between Grace and Broad streets.....  | 4                    | 412                  |
| Sixth street between Broad and Leigh streets.....  | 6                    | 1,350                |
| Sixth street between Leigh and north of Preston street.....  | 4                    | 1,612                |
| Sixth street north of Crouch street.....   | 6                    | 274                  |
| Seventh street between Cary and Tredegear streets.....   | 10                   | 1,497                |
| Seventh street between Canal and Main streets.....   | 6                    | 800                  |
| Seventh street between Canal and Tredegear streets.....  | 6                    | 1,076                |
| Seventh street between Main and Grace streets.....   | 4                    | 866                  |
| Seventh street between Grace and Broad streets.....  | 6                    | 412                  |
| Seventh street between Broad and Leigh streets.....  | 12                   | 1,350                |
| Seventh street between Leigh and Hospital streets.....   | 10                   | 2,908                |
| Seventh street between Denny and Louisiana streets.....  | 6                    | 486                  |
| Seventh street between Louisiana and Orleans streets.....  | 4                    | 272                  |
| Seventh street east of Orleans street.....   | 6                    | 398                  |



TABLE No. 8—CONTINUED.

*Street Mains.*

| LOCATION   | Size<br>in<br>Inches | Length<br>in<br>Feet |
|--|----------------------|----------------------|
| Seventeenth street between Cary and south Dock streets....                           | 8                    | 543                  |
| Seventeenth street between Cary and south of Dock street.....                        | 4                    | 178                  |
| Seventeenth street between Cary and Venable streets.....                             | 12                   | 2,595                |
| Seventeenth street between Main and Accommodation streets..                          | 4                    | 5,330                |
| Seventeenth street south of Franklin street, west of First<br>Market .....           | 11½                  | 208                  |
| Seventeenth street between Franklin and Grace streets.....                           | 3                    | 397                  |
| Seventeenth street between Venable and Lownes streets....                            | 8                    | 3,042                |
| Seventeenth street between Lownes and Fairfield streets.....                         | 6                    | 983                  |
| Seventeenth street between Fairfield street and Richmond Loco-<br>motive Works ..... | 4                    | 1,718                |

TABLE No. 8—CONTINUED.

*Street Mains.*

| LOCATION  | Size<br>in<br>inches | Length<br>in<br>Feet |
|---|----------------------|----------------------|
| Smith street between Broad and Clay streets.....                              | 6                    | 779                  |
| Stevenson street between Byrd and Arch streets.....                           | 4                    | 390                  |
| St. Paul street between Duval and Hill streets.....                           | 4                    | 1,018                |
| St. James street between Clay and Leigh streets.....                          | 4                    | 512                  |
| St. James street between Leigh and Duval streets.....                         | 6                    | 854                  |
| St. James street between Duval and Charity streets.....                       | 4                    | 620                  |
| St. James street between Charity and Hill streets.....                        | 6                    | 1,086                |
| St. James street between Hill and Bacon streets.....                          | 4                    | 581                  |
| St. Peter street between Leigh and Hill streets.....                          | 6                    | 1,882                |
| St. John street between Duval and Baker streets.....                          | 4                    | 338                  |
| St. John street between Baker and Hill streets.....                           | 6                    | 1,310                |
| St. John street between Hill and Orange streets.....                          | 4                    | 202                  |
| State street between Williamsburg avenue and corporation line.                | 4                    | 519                  |
| State street between old corporation line and Gilliam street....              | 8                    | 500                  |
| Taylor street between Randolph and Washington streets.....                    | 8                    | 811                  |
| Taylor street between Temple and Carter streets.....                          | 6                    | 350                  |
| Taylor street between Reservoir and corporation line.....                     | 6                    | 855                  |
| Taylor street between Beech and Reservoir streets.....                        | 4                    | 300                  |
| Taylor street east of Beech street.....                                       | 6                    | 159                  |
| Taylor street west of Linden street.....                                      | 4                    | 213                  |
| Trigg street between Eighteenth and Twentieth streets.....                    | 8                    | 574                  |
| Tredegar street west of Seventh street.....                                   | 6                    | 604                  |
| Tredegar street westward along New street (into works)....                    | 3                    | 376                  |
| Third street between Arch and Cary streets.....                               | 4                    | 1,194                |
| Third street between Cary and Broad streets.....                              | 16                   | 1,605                |
| Third street between Grace and Broad streets.....                             | 4                    | 175                  |
| Third street between Broad and Leigh streets.....                             | 6                    | 1,323                |
| Third street between Leigh and Bates streets.....                             | 4                    | 1,771                |
| Tenth street south of Cary street.....  | 16                   | 108                  |
| Tenth street between Cary and Main streets.....                               | 6                    | 412                  |
| Tenth street between Main and Bank streets.....                               | 4                    | 216                  |
| Tenth street south of Broad street.....                                       | 3                    | 180                  |
| Tenth street between Broad and M streets.....                                 | 4                    | 1,690                |
| Tenth street south of Byrd street.....  | 6                    | 459                  |
| Tenth street south of Canal street.....                                       | 4                    | 225                  |
| Twelfth street south of Byrd street.....                                      | 4                    | 225                  |
| Twelfth street between Byrd and Canal streets.....                            | 6                    | 389                  |
| Twelfth street between Canal and Cary streets.....                            | 8                    | 403                  |
| Twelfth street, south of Main street.....                                     | 3                    | 305                  |
| Twelfth street between Cary and Franklin streets.....                         | 6                    | 834                  |
| Twelfth street between Broad and Clay streets.....                            | 10                   | 708                  |
| Twelfth street between Broad and Clay streets.....                            | 12                   | 24                   |
| Twelfth street between Broad and Clay (at Marshall for waste)                 | 6                    | 40                   |
| Twelfth street, north of Clay street.....                                     | 3                    | 436                  |
| Thirteenth street south of Canal street (west side Shockoe<br>slip) .....     | 6                    | 282                  |
| Thirteenth street between Canal and Cary streets.....                         | 8                    | 386                  |
| Thirteenth street south of Cary street and east of Shockoe<br>Warehouse ..... | 8                    | 208                  |
| Thirteenth street south of Cary street east of Shockoe Ware-<br>house .....   | 3                    | 176                  |
| Thirteenth street between Cary and Main streets.....                          | 12                   | 400                  |
| Thirteenth street north of Cary street.....                                   | 6                    | 70                   |
| Thirteenth street south of Main street.....                                   | 3                    | 342                  |
| Thirteenth street between Main and Broad streets.....                         | 6                    | 1,202                |
| Thirteenth street between Main and Franklin streets.....                      | 12                   | 352                  |
| Thirteenth street between Marshall and Clay streets.....                      | 3                    | 414                  |
| Thirteenth street between Clay and M streets.....                             | 4                    | 848                  |
| Twentieth street between Cary and Marshall streets.....                       | 6                    | 1,999                |
| Twentieth street between Q and T streets.....                                 | 6                    | 1,127                |
| Twenty-first street north of Cary street.....                                 | 6                    | 70                   |
| Twenty-first street south of Main street.....                                 | 4                    | 330                  |
| Twenty-first street between Main and Broad streets.....                       | 4                    | 1,077                |
| Twenty-first street between Main and Grace streets.....                       | 8                    | 785                  |
| Twenty-first street between Broad and Marshall streets.....                   | 6                    | 411                  |
| Twenty-first street north of Venable street.....                              | 6                    | 288                  |
| Twenty-first street between Carrington and Q streets.....                     | 6                    | 671                  |
| Twenty-first street between Q and U streets.....                              | 12                   | 1,525                |
| Twenty-second street south of Cary street.....                                | 6                    | 50                   |
| Twenty-second street between Cary and Main streets.....                       | 6                    | 428                  |

TABLE No. 8—CONTINUED.

*Street Mains.*

| LOCATION   | Size<br>in<br>Inches | Length<br>in<br>Feet |
|--|----------------------|----------------------|
| Twenty-second street between Main and Franklin streets....               | 4                    | 390                  |
| Twenty-second street between Grace and Marshall streets....              | 4                    | 793                  |
| Twenty-second street between Marshall and Burton streets....             | 6                    | 1,599                |
| Twenty-second street between Broad and Carrington streets..              | 12                   | 2,544                |
| Twenty-second street between Q and U streets.....                        | 6                    | 1,525                |
| Twenty-third street north of Cary street.....                            | 6                    | 24                   |
| Twenty-third street north of Main street.....                            | 1½                   | 290                  |
| Twenty-third street between Broad and Franklin streets.....              | 6                    | 832                  |
| Twenty-third street between Broad and Venable streets.....               | 6                    | 2,579                |
| Twenty-third street between Q and T streets.....                         | 6                    | 1,127                |
| Twenty-third street between U street and corporation line....            | 6                    | 624                  |
| Tulip street between Venable and Carrington streets.....                 | 6                    | 347                  |
| Twenty-fourth street between Main and Cary streets.....                  | 12                   | 400                  |
| Twenty-fourth street near Main (into Childrey's factory)....             | 3                    | 90                   |
| Twenty-fourth street between Main and Franklin streets.....              | 4                    | 412                  |
| Twenty-fourth street between Broad and O streets.....                    | 6                    | 2,461                |
| Twenty-fourth street (Pink street) between O and Venable<br>streets..... | 4                    | 419                  |
| Twenty-fourth street north of Carrington street.....                     | 6                    | 441                  |
| Twenty-fourth street north of Carrington street.....                     | 4                    | 275                  |
| Twenty-fourth street between S and T streets.....                        | 6                    | 360                  |
| Twenty-fifth street between Cary and Main streets.....                   | 6                    | 400                  |
| Twenty-fifth street between Main and Franklin streets.....               | 3                    | 400                  |
| Twenty-fifth street between Franklin and Broad streets....               | 4                    | 777                  |
| Twenty-fifth street between Broad and M streets.....                     | 12                   | 1,529                |
| Twenty-fifth street between M and Venable streets.....                   | 10                   | 1,594                |
| Twenty-fifth street between Broad and corporation line.....              | 6                    | 3,257                |
| Twenty-fifth street between old corporation line and R street..          | 6                    | 287                  |
| Twenty-sixth street between Cary and Main streets.....                   | 6                    | 421                  |
| Twenty-sixth street between Franklin and Marshall streets..              | 4                    | 1,185                |
| Twenty-sixth street between Marshall and Q streets.....                  | 6                    | 2,847                |
| Twenty-sixth street between Q street and corporation line....            | 4                    | 176                  |
| Twenty-seventh street between Broad and Franklin streets..               | 12                   | 817                  |
| Twenty-seventh street between Broad and Marshall streets....             | 4                    | 396                  |
| Twenty-seventh street between Marshall and Clay streets....              | 6                    | 440                  |
| Twenty-seventh street between Leigh and N streets.....                   | 8                    | 827                  |
| Twenty-seventh street between N and Q streets.....                       | 6                    | 1,193                |
| Twenty-seventh street between Q and R streets.....                       | 6                    | 366                  |
| Twenty-seventh street between Clay and Leigh streets.....                | 12                   | 345                  |
| Twenty-eighth street between Franklin and Marshall streets..             | 4                    | 1,170                |
| Twenty-eighth street between Marshall and P streets.....                 | 6                    | 2,430                |
| Twenty-eighth street between Q and S streets.....                        | 6                    | 780                  |
| Twenty-ninth street between Main and Grace streets.....                  | 4                    | 735                  |
| Twenty-ninth street between Grace and Broad streets.....                 | 6                    | 397                  |
| Twenty-ninth street west to fountain in Libby Hill Park.....             | 3                    | 93                   |
| Twenty-ninth street between Broad and M streets.....                     | 6                    | 1,567                |
| Twenty-ninth street between N and P streets.....                         | 6                    | 849                  |
| Twenty-ninth street north of Q street.....                               | 6                    | 174                  |
| Thirtieth street north of Main street.....                               | 4                    | 300                  |
| Thirtieth street between Broad and O streets.....                        | 6                    | 2,452                |
| Thirty-first street between Franklin and Main streets.....               | 4                    | 366                  |
| Thirty-first street south of Broad street.....                           | 6                    | 186                  |
| Thirty-first street between Broad and Marshall streets.....              | 6                    | 402                  |
| Thirty-first street between Marshall and M streets.....                  | 6                    | 1,224                |
| Thirty-second street south of Grace street.....                          | 4                    | 123                  |
| Thirty-second street between Broad and Grace streets.....                | 4                    | 400                  |
| Thirty-second street between Broad and Marshall streets....              | 6                    | 405                  |
| Thirty-second street between Marshall and Clay streets.....              | 12                   | 382                  |
| Thirty-third street between Broad and old corporation line....           | 6                    | 615                  |
| Thirty-third street between Marshall and Leigh streets.....              | 8                    | 564                  |
| Thirty-fourth street between Broad and Marshall streets....              | 6                    | 499                  |
| Thirty-fourth street, north of Marshall street.....                      | 6                    | 146                  |
| Thirty-fourth street between Marshall and Clay streets.....              | 8                    | 200                  |
| Thirty-fifth street between Clay and Marshall streets.....               | 8                    | 147                  |
| Thirty-sixth street between Broad and Marshall streets.....              | 8                    | 394                  |
| Temple street between Cary and Taylor streets.....                       | 6                    | 300                  |
| Tyler street between Cabell and Calhoun streets.....                     | 6                    | 291                  |
| Union street south of Grace street.....                                  | 3                    | 283                  |
| Union street north of Marshall street.....                               | 3                    | 207                  |
| Vine street between Main and Cary streets.....                           | 6                    | 376                  |

TABLE NO. 8—CONTINUED.

*Street Mains.*

| LOCATION   | Size<br>in<br>Inches | Length<br>in<br>Feet |
|--|----------------------|----------------------|
| Vine street between Grove avenue and Main street.....        | 16                   | 900                  |
| Vine street between Grove avenue and Park avenue.....        | 6                    | 782                  |
| Virginia street south of Cary street.....                    | 8                    | 521                  |
| Virginia street from alley to railroad bridge.....           | 4                    | 100                  |
| Venable street between Seventeenth and Eighteenth streets..  | 4                    | 536                  |
| Venable street between Eighteenth and Twenty-fifth streets.. | 6                    | 2,974                |
| Walnut street between Grove and Park avenues.....            | 6                    | 862                  |
| West avenue between Birch and Lombardy streets.....          | 8                    | 400                  |
| West avenue between Harrison and west of Birch street.....   | 6                    | 1,027                |
| Washington street south of Cary street.....                  | 6                    | 182                  |
| Washington street between Seventeenth and Buchanan streets.  | 6                    | 376                  |
| Wharf street east of Ash street.....                         | 3                    | 355                  |
| Wharf street west of Hague street.....                       | 4                    | 480                  |
| Williamsburg avenue between Lester and Orleans streets.....  | 12                   | 4,350                |
| Williamsburg avenue east of Orleans street.....              | 6                    | 146                  |

TABLE No. 9.

*Fire Hydrants.*

| LOCATION  | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs per Square Inch |
|---|----------------------|--------------------|---------------|---------------|---------------------------------|
| Amelia street, south side, 358 feet west of Carter street .....                               | 15                   | 4                  | 1             | ...           | 19                              |
| Alley west side Meadow street between Monument avenue and Grace streets.....                  | 21                   | 4                  | 1             | ...           | 70                              |
| Alley between Monument avenue and Grace street, west side Lombardy street.....                | 6                    | 4                  | 1             | ...           | 69                              |
| Alley between Broad and Grace streets and Lombardy and Allen avenue, east of Allen avenue.... | 27                   | 4                  | 1             | ..            | 68                              |
| Alley between Park and Monument avenues, west side Allen avenue.....                          | 17                   | 4                  | 1             | ...           | 63                              |
| Alley between Broad and Grace and Allison and Addison streets (west Allison).....             | 15                   | 4                  | 1             | ...           | 67                              |
| Alley between Monument avenue and Grace street, east side Allison street.....                 | 20                   | 4                  | 1             | ...           | 66                              |
| Addison street and alley north of Franklin, southeast corner .....                            | 8                    | 4                  | 1             | ...           | 66                              |
| *Albemarle and Pine streets, northeast corner.....  | 13                   | 4                  | 1             | ...           | 22                              |
| Albemarle and Laurel streets, southwest corner.....   | 13                   | 4                  | 1             | ...           | 26                              |
| Albemarle and Cherry streets, northeast corner.....   | 18                   | 4                  | 1             | ...           | 26                              |
| Ashland and Randolph streets, northeast corner.....   | 16                   | 4                  | 1             | ...           | 25                              |
| Arch and Second streets, northeast corner.....  | 21                   | 4                  | 1             | 1             | 48                              |
| Arch and Third streets, northeast corner.....   | 20                   | 4                  | 1             | ...           | 31                              |
| Arch and Fourth streets, northeast corner.....  | 20                   | 4                  | 1             | ...           | 33                              |
| Arch and Seventh streets, northeast corner.....   | 20                   | 4                  | 1             | ...           | 47                              |
| Arch and Eighth streets, northwest corner.....  | 20                   | 3                  | 1             | 1             | 45                              |
| Arch and Ninth streets.....   | 30                   | 4                  | 1             | ...           | 50                              |
| Arch and Ninth streets, northwest corner.....   | 11                   | 4                  | 1             | ...           | 47                              |
| Allen avenue, east side, at alley north of Franklin..   | 27                   | 4                  | 1             | ...           | 63                              |
| Boulevard and alley south of Broad, southeast corner.   | 12                   | 4                  | 1             | ...           | 60                              |
| Bowe street, east side at alley north of Marshall st..  | 26                   | 4                  | 1             | ...           | 17                              |
| Belvidere and Rowe streets, southeast corner.....   | 22                   | 4                  | 1             | ...           | 29                              |
| Belvidere and Maiden Lane, southwest corner.....  | 13                   | 4                  | 1             | ...           | 26                              |
| Bates and Third streets, southeast corner.....  | 19½                  | 4                  | 1             | ...           | 32                              |
| Bates and Eighth streets, southwest corner.....   | 10½                  | 4                  | 1             | ...           | 26                              |
| Beverly street and road east of Reservoir lake, southwest corner.....                         | 7                    | 4                  | 1             | ...           | 60                              |
| Beverly and Washington streets, northeast corner...   | 28                   | 4                  | 1             | ...           | 14                              |
| Beverly and Lady streets, southwest corner.....   | 11                   | 4                  | 1             | ...           | 15                              |
| Beverly and Reservoir streets, southeast corner.....  | 18                   | 4                  | 1             | ...           | 29                              |
| Beverly and Beech streets, northwest corner.....  | 13                   | 4                  | 1             | ...           | 19                              |
| Beverly and Cherry streets, northeast corner.....   | 13                   | 4                  | 1             | ...           | 24                              |
| Beverly and Laurel streets, southeast corner.....   | 28                   | 4                  | 1             | ...           | 25                              |
| Beverly and Pine streets, southeast corner.....   | 13                   | 4                  | 1             | ...           | 26                              |
| Beverly and Belvidere streets, northwest corner....   | 10                   | 4                  | 1             | ...           | 27                              |
| Bragg and Seventh streets, west side Seventh street..   | 25                   | 4                  | 1             | ...           | 43                              |
| Bragg and Sixth streets, west side Sixth street.....  | 28                   | 4                  | 1             | ...           | 43                              |
| Byrd and Jefferson streets, northeast corner.....   | 8                    | 4                  | 1             | ...           | 35                              |
| Byrd and Second streets, northwest corner.....  | 25                   | 4                  | 1             | 1             | 41                              |
| Byrd and Third streets, northeast corner.....   | 20                   | 4                  | 1             | ...           | 31                              |
| Byrd and Fourth streets, northeast corner.....  | 25                   | 4                  | 1             | ...           | 36                              |
| Byrd and Fifth streets, northwest corner.....   | 25                   | 3                  | 1             | ...           | 27                              |
| Byrd and Sixth streets, northeast corner.....   | 20                   | 4                  | 1             | ...           | 37                              |
| Byrd and Seventh streets, northeast corner.....   | 25                   | 4                  | 1             | ...           | 38                              |
| Byrd and Eighth streets, northeast corner.....  | 25                   | 4                  | 1             | ...           | 38                              |
| Byrd and Ninth streets, southwest corner.....   | 25                   | 4                  | 1             | ...           | 41                              |
| Byrd and Tenth streets, southwest corner.....   | 30                   | 4                  | 1             | ...           | 36                              |
| Byrd and Tenth streets, northwest corner.....   | 20                   | 4                  | 1             | ...           | 36                              |
| Byrd and Eleventh streets, northwest corner.....  | 22                   | 4                  | 1             | ...           | 41                              |
| Byrd and Twelfth streets, southwest corner.....   | 25                   | 4                  | ...           | 1             | 51                              |

\*Sign x means branches on cross streets.



TABLE No. 9—CONTINUED.

*Fire Hydrants.*

| LOCATION  | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|---|----------------------|--------------------|---------------|---------------|----------------------------------|
| Bank and Tenth streets, southwest corner.....                     | 21                   | 4                  | 1             | ..            | 46                               |
| Bank and Eleventh streets, north side.....                        | 22                   | 3                  | ..            | 1             | 46                               |
| Bank and Twelfth streets, northwest corner.....x                  | 22                   | 4                  | 1             | ..            | 43                               |
| Broad and Mulberry streets, southwest corner.....                 | 28                   | 4                  | 1             | ..            | 70                               |
| Broad and Addison streets, southwest corner.....x                 | 12                   | 4                  | 1             | ..            | 68                               |
| Broad street, south side 160 feet west of Lombardy street .....   | 20                   | 4                  | 1             | ..            | 69                               |
| Broad and Lombardy streets, southeast corner...x                  | 22                   | 4                  | 1             | ..            | 69                               |
| Broad and Bowe streets, northeast corner.....                     | 11                   | 4                  | 1             | ..            | 15                               |
| Broad and Kinney streets, northwest corner.....                   | 12                   | 4                  | 1             | ..            | 16                               |
| Broad and Harrison streets, northwest corner.....                 | 24                   | 4                  | 1             | ..            | 19                               |
| Broad and Ryland streets, southeast corner.....                   | 22                   | 4                  | 1             | ..            | 17                               |
| Broad and Harrison streets, southeast corner.....                 | 21                   | 4                  | 1             | ..            | 19                               |
| Broad and Hancock streets, northeast corner.....                  | 45                   | 4                  | 1             | ..            | 20                               |
| Broad (northside) between Hancock and Graham streets .....        | 45                   | 4                  | 1             | ..            | 20                               |
| Broad and Gilmer, northwest corner.....                           | 45                   | 4                  | 1             | ..            | 21                               |
| Broad and Belvidere streets, southeast corner.....x               | 17                   | 4                  | 1             | ..            | 20                               |
| Broad and Smith streets, northeast corner.....x                   | 11                   | 4                  | 1             | ..            | 24                               |
| Broad and Munford streets, northeast corner.....                  | 45                   | 4                  | ..            | 1             | 24                               |
| Broad and Henry streets, northwest corner.....                    | 45                   | 4                  | ..            | 1             | 25                               |
| Broad and Jefferson streets, southeast corner...x                 | 14                   | 4                  | 1             | ..            | 28                               |
| Broad and Jefferson streets, northwest corner.....                | 15                   | 4                  | 1             | ..            | 24                               |
| Broad and Monroe streets, northeast corner.....x                  | 21                   | 4                  | 1             | ..            | 25                               |
| Broad and Madison streets, northeast corner.....                  | 45                   | 4                  | 1             | ..            | 25                               |
| Broad and Foushee streets, southwest corner.....x                 | 16                   | 4                  | 1             | ..            | 25                               |
| Broad and Foushee streets, northwest corner.....                  | 11                   | 4                  | 1             | ..            | 23                               |
| Broad and Adams streets, southeast corner.....                    | 45                   | 4                  | ..            | 1             | 25                               |
| Broad and First streets, southeast corner.....x                   | 25                   | 4                  | 1             | ..            | 21                               |
| Broad and First streets, northwest corner.....x                   | 21                   | 4                  | 1             | ..            | 23                               |
| Broad and Second streets, northwest corner.....x                  | 21                   | 4                  | 1             | ..            | 23                               |
| Broad and Second streets, southwest corner.....x                  | 22                   | 4                  | 1             | ..            | 26                               |
| Broad and Third streets, northwest corner.....x                   | 21                   | 4                  | 1             | ..            | 22                               |
| Broad and Third streets, southeast corner.....                    | 45                   | 4                  | ..            | 1             | 23                               |
| Broad and Fourth streets, southeast corner.....x                  | 21                   | 4                  | 1             | ..            | 24                               |
| Broad and Fourth streets, northeast corner.....x                  | 21                   | 4                  | 1             | ..            | 20                               |
| Broad and Fifth streets, southwest corner.....x                   | 25                   | 4                  | 1             | ..            | 20                               |
| Broad and Fifth streets, northwest corner.....                    | 36                   | 6                  | 1             | ..            | 21                               |
| Broad and Sixth streets, northeast corner.....x                   | 45                   | 3                  | 1             | ..            | 19                               |
| Broad and Sixth streets, southeast corner.....x                   | 45                   | 4                  | 1             | ..            | 25                               |
| Broad and Seventh streets, northeast corner.....                  | 45                   | 4                  | 1             | ..            | 20                               |
| Broad and Seventh streets, southwest corner.....x                 | 21                   | 4                  | 1             | ..            | 20                               |
| Broad and Eighth streets, southeast corner.....                   | 45                   | 4                  | 1             | ..            | 21                               |
| Broad and Eighth streets, northwest corner.....x                  | 11                   | 4                  | 1             | ..            | 22                               |
| Broad and Ninth streets, northwest corner.....x                   | 19                   | 4                  | 1             | ..            | 25                               |
| Broad and Ninth streets, southeast corner.....x                   | 25                   | 4                  | 1             | ..            | 24                               |
| Broad street between Ninth and Tenth streets (engine house) ..... | 40                   | 4                  | 1             | ..            | 24                               |
| Broad and Tenth streets, southwest corner.....                    | 45                   | 4                  | 1             | ..            | 26                               |
| Broad and Eleventh streets, northeast corner.....                 | 45                   | 3                  | 1             | ..            | 27                               |
| Broad and Twelfth streets, southwest corner.....x                 | 25                   | 4                  | 1             | ..            | 30                               |
| Broad and Twelfth streets, northeast corner.....                  | 41                   | 4                  | 1             | ..            | 30                               |
| Broad street, south side, 290 feet east of Twelfth st..           | 45                   | 3                  | 1             | ..            | 38                               |
| Broad and Fourteenth streets, southeast corner.....               | 13                   | 4                  | 1             | ..            | 47                               |
| Broad and Mayo streets, southeast corner.....                     | 15                   | 4                  | 1             | ..            | 51                               |
| Broad street and Jail alley, northeast corner.....                | 45                   | 4                  | 1             | ..            | 60                               |
| Broad street and Lumpkin's alley, southeast corner..              | 22                   | 4                  | 1             | ..            | 69                               |
| Broad street and C. & O. R. R., northwest corner...               | 22                   | 4                  | 1             | ..            | 83                               |
| Broad and Seventeenth streets, northeast corner....               | 20                   | 4                  | 1             | ..            | 76                               |
| Broad and Eighteenth streets, southwest corner...x                | 25                   | 4                  | 1             | ..            | 54                               |

\*Sign x means branches on cross streets.



TABLE No. 9—CONTINUED.

*Fire Hydrants.*

| LOCATION   | Length of<br>Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs.<br>per Square Inch |
|--|-------------------------|--------------------|---------------|---------------|-------------------------------------|
| Broad and Nineteenth streets, southeast corner....x        | 25                      | 3                  | 1             | ..            | 74                                  |
| Broad and Twentieth streets, southwest corner....x         | 25                      | 4                  |               | 1             | 38                                  |
| Broad and Twenty-first streets, northwest corner....x      | 25                      | 4                  | 1             | ..            | 53                                  |
| Broad and Twenty-second streets, southeast corner....x     | 21                      | 4                  | 1             | ..            | 39                                  |
| Broad and Twenty-third streets, southwest corner....x      | 25                      | 4                  | 1             | ..            | 31                                  |
| Broad and Twenty-fourth streets, northeast corner....x     | 21                      | 4                  | 1             | ..            | 28                                  |
| Broad and Twenty-fifth streets, southwest corner....x      | 25                      | 4                  | 1             | ..            | 24                                  |
| Broad and Twenty-sixth streets, northeast corner....x      | 21                      | 4                  | 1             | ..            | 21                                  |
| Broad and Twenty-seventh streets, southwest corner....     | 25                      | 4                  | 1             | ..            | 26                                  |
| Broad and Twenty-eighth streets, northeast corner....      | 25                      | 4                  | 1             | ..            | 24                                  |
| Broad and Twenty-ninth streets, northeast corner....       | 22                      | 4                  | 1             | ..            | 30                                  |
| Broad and Thirtieth streets, southwest corner.....         | 25                      | 4                  |               | 1             | 32                                  |
| Broad and Thirty-first streets, southeast corner.....      | 14                      | 4                  | 1             | ..            | 32                                  |
| Broad and Thirty-second streets, northwest corner....      | 10                      | 4                  | 1             | ..            | 33                                  |
| Broad and Thirty-third streets, southwest corner.....      | 25                      | 4                  | 1             | ..            | 29                                  |
| Broad and Thirty-fourth streets, southwest corner....      | 15                      | 4                  | 1             | ..            | 30                                  |
| Broad and Thirty-fifth streets, northwest corner....       | 10                      | 4                  | 1             | ..            | 31                                  |
| Broad and Thirty-sixth streets, northwest corner....x      | 10                      | 4                  | 1             | ..            | 31                                  |
| Broad and Thirty-seventh streets, northwest corner....     | 10                      | 4                  | 1             | ..            | 32                                  |
| Baker and St. James streets, northwest corner.....         | 20                      | 4                  |               | 1             | 26                                  |
| Baker and St. John streets, northwest corner.....          | 20                      | 4                  | 1             | ..            | 26                                  |
| Baker and St. Paul streets, northwest corner.....          | 20                      | 4                  | 1             | ..            | 28                                  |
| Baker and Hickory streets, northeast corner.....           | 20                      | 4                  | 1             | ..            | 30                                  |
| Baker and Roane streets, northwest corner.....             | 20                      | 4                  | 1             | ..            | 33                                  |
| Baker and Second streets, southeast corner.....            | 13                      | 4                  | 1             | ..            | 28                                  |
| Baker and Third streets, southwest corner.....x            | 20                      | 4                  |               | 1             | 33                                  |
| Baker and Fourth streets, northeast corner.....            | 14                      | 4                  | 1             | ..            | 30                                  |
| Baker and Fifth streets, southeast corner.....x            | 20                      | 4                  |               | 1             | 31                                  |
| Baker and Sixth streets, southeast corner.....             | 25                      | 4                  | ..            | 1             | 25                                  |
| Baker and Seventh streets, northeast corner.....           | 8                       | 4                  | 1             | ..            | 24                                  |
| Baker and Brook avenue, northeast corner.....              | 20                      | 4                  | ..            | 1             | 36                                  |
| Baker and Brook avenue north of Clay.....x                 | 20                      | 4                  |               | 1             | 31                                  |
| Brook avenue and Monroe street, southeast corner....       | 11                      | 4                  | 1             | ..            | 24                                  |
| Brook avenue, west side, near Creek.....x                  | 20                      | 4                  | ..            | 1             | 43                                  |
| Buchanan and Carrington streets, southwest corner....x     | 9                       | 4                  | 1             | ..            | 35                                  |
| Buchanan and Jay streets, southeast corner.....x           | 22                      | 4                  | 1             | ..            | 30                                  |
| Buchanan and Cedar streets, southwest corner....x          | 12                      | 4                  | 1             | ..            | 31                                  |
| Buchanan and Washington streets, northeast corner....x     | 22                      | 4                  | 1             | ..            | 30                                  |
| Buchanan and Williams streets, southwest corner....        | 20                      | 4                  | 1             | ..            | 32                                  |
| Buchanan and Richards streets, southwest corner....x       | 8                       | 4                  | 1             | ..            | 35                                  |
| Buchanan and Baldwin streets, northwest corner....         | 7                       | 4                  | 1             | ..            | 29                                  |
| Buchanan and Accommodation streets, northwest corner ..... | 6                       | 4                  | 1             | ..            | 67                                  |
| Buchanan and Fairfield streets, southwest corner....       | 8                       | 4                  | 1             | ..            | 65                                  |
| Burton and Twenty-third streets, northwest corner....x     | 13                      | 4                  | 1             | ..            | 27                                  |
| Canal and Linden streets, southeast corner.....x           | 11                      | 4                  | 1             | ..            | 24                                  |
| Canal and Cherry streets, northwest corner.....x           | 18                      | 4                  | 1             | ..            | 21                                  |
| Canal and Laurel streets, south side Canal street....      | 22                      | 4                  | ..            | 1             | 32                                  |
| Canal and Pine streets, northeast corner.....              | 13                      | 4                  |               | 1             | 26                                  |
| Canal and Belvidere streets, northwest corner....x         | 18                      | 4                  | 1             | ..            | 28                                  |
| Canal and Madison streets, southeast corner.....           | 19                      | 4                  | 1             | ..            | 34                                  |
| Canal and Jefferson streets, northeast corner.....         | 23                      | 4                  | 1             | ..            | 39                                  |
| Canal and Adams streets, northeast corner.....             | 23                      | 4                  | ..            | 1             | 43                                  |
| Canal and Foushee streets, southeast corner.....           | 20                      | 4                  | 1             | ..            | 48                                  |
| Canal and First streets, northeast corner.....             | 23                      | 4                  | ..            | 1             | 35                                  |
| Canal and Second streets, southeast corner.....            | 25                      | 4                  | ..            | 1             | 32                                  |
| Canal and Third streets, northwest corner.....x            | 27                      | 4                  | 1             | ..            | 42                                  |
| Canal and Fourth streets, northeast corner.....x           | 25                      | 4                  | ..            | 1             | 32                                  |
| Canal and Fifth streets, southwest corner.....x            | 21                      | 4                  | 1             | ..            | 25                                  |
| Canal and Sixth streets, northeast corner.....             | 25                      | 3                  | 1             | ..            | 31                                  |

Sign x means branches on cross streets.

TABLE No. 9—CONTINUED.

*Fire Hydrants.*

| LOCATION  | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|---|----------------------|--------------------|---------------|---------------|----------------------------------|
| Canal and Seventh streets, northeast corner.....                        | 25                   | 4                  | .             | 1             | 35                               |
| Canal and Eighth streets, northeast corner.....                         | 24                   | 4                  | 3             | .             | 35                               |
| Canal and Tenth streets, southeast corner.....                          | 25                   | 4                  | .             | 1             | 29                               |
| Canal and Eleventh streets, southwest corner.....                       | 33                   | 4                  | .             | .             | 35                               |
| Canal and Twelfth streets, southwest corner.....                        | 27                   | 4                  | 1             | .             | 41                               |
| Canal and Thirteenth streets, northwest corner.....                     | 25                   | 4                  | 1             | .             | 43                               |
| Chaffin and Elm streets, southwest corner.....                          | 9                    | 4                  | 1             | .             | 62                               |
| Chaffin and Strawberry streets, southwest corner....                    | 9                    | 4                  | 1             | .             | 61                               |
| Chaffin and Reservoir streets, southwest corner....x                    | 12                   | 4                  | 1             | .             | 29                               |
| Chaffin and Beech streets, northwest corner.....x                       | 14                   | 4                  | 1             | .             | 23                               |
| China and Cherry streets, southeast corner.....                         | 22                   | 4                  | 1             | .             | 30                               |
| China and Laurel streets, northwest corner.....x                        | 13                   | 4                  | 1             | .             | 30                               |
| China and Pine streets, southwest corner.....x                          | 13                   | 4                  | 1             | .             | 27                               |
| Church street and Maiden Lane, southwest corner..x                      | 13                   | 4                  | .             | 1             | 28                               |
| Cary and Temple streets, southwest corner.....x                         | 8                    | 4                  | 1             | .             | 13                               |
| Cary and Park streets, northeast corner.....                            | 22                   | 4                  | 1             | .             | 12                               |
| Cary and Sycamore streets, southwest corner.....                        | 11                   | 4                  | 1             | .             | 62                               |
| Cary and Mulberry streets, northwest corner.....                        | 7                    | 4                  | 1             | .             | 60                               |
| Cary and Rowland streets, northwest corner.....x                        | 9                    | 4                  | 1             | .             | 64                               |
| Cary and Lombardy streets, northeast corner.....                        | 22                   | 4                  | 1             | .             | 14                               |
| Cary and Harvie streets, southwest corner.....                          | 22                   | 4                  | 1             | .             | 17                               |
| Cary and Plum streets, northeast corner.....x                           | 11                   | 4                  | 1             | .             | 15                               |
| Cary and Short streets, northeast corner.....                           | 22                   | 4                  | 1             | .             | 20                               |
| Cary and Morris streets, northeast corner.....                          | 22                   | 4                  | 1             | .             | 25                               |
| Cary and Beech streets, northeast corner.....x                          | 26                   | 4                  | .             | .             | 24                               |
| Cary and Linden streets, southwest corner.....                          | 18                   | 4                  | 1             | .             | 16                               |
| Cary and Cherry streets, northeast corner.....                          | 18                   | 4                  | 1             | .             | 20                               |
| Cary and Laurel streets, southeast corner.....                          | 18                   | 4                  | 1             | .             | 20                               |
| Cary and Pine streets, northeast corner.....                            | 13                   | 4                  | 1             | .             | 24                               |
| Cary and Belvidere streets, southwest corner.....x                      | 12                   | 4                  | 1             | .             | 25                               |
| Cary and Madison streets, southwest corner.....                         | 23                   | 4                  | 1             | .             | 33                               |
| Cary and Jefferson streets, southeast corner.....                       | 23                   | 4                  | .             | 1             | 36                               |
| Cary and Adams streets, northeast corner.....                           | 23                   | 4                  | 1             | .             | 33                               |
| Cary and Foushee streets, northeast corner.....                         | 23                   | 4                  | 1             | .             | 29                               |
| Cary and First streets, southeast corner.....                           | 25                   | 4                  | 1             | .             | 26                               |
| Cary and Second streets, northwest corner.....x                         | 21                   | 4                  | 1             | .             | 26                               |
| Cary and Third streets, southwest corner.....                           | 25                   | 4                  | 1             | .             | 30                               |
| Cary and Fourth streets, southwest corner.....                          | 22                   | 4                  | 1             | .             | 35                               |
| Cary and Fifth streets, southwest corner.....x                          | 25                   | 4                  | .             | 1             | 37                               |
| Cary and Sixth streets, northwest corner.....x                          | 25                   | 4                  | 1             | .             | 27                               |
| Cary and Seventh streets, southeast corner.....                         | 18                   | 4                  | 1             | .             | 34                               |
| Cary and Seventh streets, northwest corner.....                         | 25                   | 4                  | 1             | .             | 55                               |
| Cary and Eighth streets, northwest corner.....                          | 25                   | 4                  | .             | 1             | 38                               |
| Cary and Ninth streets, northeast corner.....                           | 25                   | 4                  | 1             | .             | 38                               |
| Cary street between Ninth and Tenth streets.....                        | 17                   | 4                  | 1             | .             | 46                               |
| Cary and Tenth streets, southeast corner.....                           | 20                   | 4                  | 1             | .             | 42                               |
| Cary and Eleventh streets, northwest corner.....                        | 25                   | 3                  | 1             | .             | 38                               |
| Cary and Twelfth streets, northwest corner.....                         | 25                   | 4                  | 1             | .             | 39                               |
| Cary and Twelfth streets, southwest corner.....                         | 18                   | 4                  | 1             | .             | 39                               |
| Cary and Thirteenth streets, northwest corner.....                      | 25                   | 4                  | 1             | .             | 44                               |
| Cary and Fourteenth streets, southeast corner....x                      | 14                   | 4                  | 1             | .             | 53                               |
| Cary and Virginia streets, southeast corner....x                        | 10                   | 4                  | 1             | .             | 51                               |
| Cary and Fourteenth streets, northwest corner....x                      | 25                   | 4                  | 1             | .             | 53                               |
| Cary and Fifteenth streets, southwest corner....x                       | 25                   | 4                  | .             | 1             | 57                               |
| Cary and Fifteenth streets, northeast corner....x                       | 17                   | 4                  | 1             | .             | 57                               |
| Cary street, south side, between Fifteenth and Seventeenth streets..... | 16                   | 4                  | 1             | .             | 58                               |
| Cary and Seventeenth streets, northwest corner.....                     | 25                   | 4                  | .             | 1             | 59                               |
| Cary and Eighteenth streets, northwest corner....x                      | 25                   | 4                  | 1             | .             | 59                               |
| Cary and Nineteenth streets, northeast corner....x                      | 25                   | 4                  | 1             | .             | 56                               |

Sign x means branches on cross streets.

TABLE No. 9—CONTINUED.

*Fire Hydrants.*

| LOCATION   | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|--|----------------------|--------------------|---------------|---------------|----------------------------------|
| Cary and Nineteenth streets, southwest corner....x                 | 16                   | 4                  | 1             | .             | 56                               |
| Cary and Twentieth streets, northwest corner....x                  | 25                   | 4                  | .             | 1             | 54                               |
| Cary and Twentieth streets, southeast corner....x                  | 21                   | 4                  | 1             | .             | 55                               |
| Cary and Twenty-first streets, southeast corner....x               | 25                   | 4                  | 1             | .             | 52                               |
| Cary and Twenty-first streets, northwest corner....x               | 22                   | 4                  | 1             | .             | 53                               |
| Cary and Twenty-second streets, northwest corner....x              | 25                   | 4                  | 1             | .             | 52                               |
| Cary and Twenty-third streets, northwest corner....x               | 24                   | 4                  | 1             | .             | 50                               |
| Cary and Twenty-third streets, southeast corner....x               | 27                   | 4                  | 1             | .             | 50                               |
| Cary and Twenty-fourth streets, northwest corner....x              | 25                   | 4                  | .             | 1             | 47                               |
| Cary and Twenty-fifth streets, southwest corner....x               | 15                   | 4                  | 1             | .             | 48                               |
| Cary and Twenty-sixth streets, southwest corner....x               | 15                   | 4                  | 1             | .             | 48                               |
| Cary and Pear streets, northwest corner....x                       | 11                   | 4                  | 1             | .             | 45                               |
| Capitol and Eleventh streets, northeast corner....x                | 22                   | 4                  | 1             | .             | 27                               |
| College street, 120 feet south of Marshall street..x               | 20                   | 3                  | .             | 1             | 39                               |
| Catherine and Smith streets, northeast corner....x                 | 15                   | 4                  | 1             | .             | 36                               |
| Catherine and Gilmer streets, southeast corner....x                | 15                   | 4                  | 1             | .             | 30                               |
| Catherine and Henry streets, northwest corner....x                 | 15                   | 4                  | 1             | .             | 26                               |
| Charity and St. James streets, southwest corner....x               | 25                   | 4                  | 1             | .             | 27                               |
| Charity and St. John streets, southeast corner....x                | 25                   | 4                  | 1             | .             | 28                               |
| Charity and St. Paul streets, northeast corner....x                | 20                   | 4                  | 1             | .             | 29                               |
| Charity and Second streets, northwest corner....x                  | 25                   | 4                  | 1             | .             | 29                               |
| Clay and Bowe streets, southeast corner....x                       | 22                   | 4                  | .             | 1             | 17                               |
| Clay and Kinney streets, northwest corner....x                     | 21                   | 4                  | 1             | .             | 16                               |
| Clay and Norton streets, southeast corner....x                     | 25                   | 4                  | .             | 1             | 20                               |
| Clay and Harrison streets, northeast corner....x                   | 25                   | 4                  | .             | 1             | 24                               |
| Clay and Hancock streets, northwest corner....x                    | 9                    | 4                  | 1             | .             | 25                               |
| Clay street, north side, between Graham and Hancock streets        | 25                   | 4                  | .             | 1             | 26                               |
| Clay and Gilmer streets, southwest corner....x                     | 25                   | 4                  | .             | 1             | 28                               |
| Clay and Graham streets, northwest corner....x                     | 11                   | 4                  | 1             | .             | .                                |
| Clay and Munford streets, southeast corner....x                    | 10                   | 4                  | 1             | .             | 23                               |
| Clay and Smith streets, northeast corner....x                      | 25                   | 4                  | 1             | .             | 25                               |
| Clay and Henry streets, northwest corner....x                      | 11                   | 4                  | 1             | .             | 22                               |
| Clay and Monroe streets, southwest corner....x                     | 25                   | 4                  | 1             | .             | 24                               |
| Clay and Brook avenue, southeast corner....x                       | 25                   | 4                  | 1             | .             | 24                               |
| Clay and Adams streets, northwest corner....x                      | 15                   | 4                  | 1             | .             | 24                               |
| Clay and St. James streets, northwest corner....x                  | 14                   | 4                  | 1             | .             | .                                |
| Clay and First streets, northwest corner....x                      | 25                   | 4                  | 1             | .             | 24                               |
| Clay and Second streets, northwest corner....x                     | 25                   | 4                  | 1             | .             | 23                               |
| Clay and Third streets, northeast corner....x                      | 25                   | 4                  | .             | 1             | 23                               |
| Clay and Fourth streets, northeast corner....x                     | 25                   | 4                  | 1             | .             | 25                               |
| Clay and Fifth streets, northeast corner....x                      | 28                   | 4                  | 1             | .             | 23                               |
| Clay and Sixth streets, northwest corner....x                      | 25                   | 4                  | 1             | .             | 25                               |
| Clay and Seventh streets, southeast corner....x                    | 25                   | 4                  | 1             | .             | 27                               |
| Clay and Eighth streets, southeast corner....x                     | 25                   | 4                  | 1             | .             | 24                               |
| Clay and Ninth streets, northwest corner....x                      | 25                   | 4                  | 1             | .             | 25                               |
| Clay and Tenth streets, northeast corner....x                      | 25                   | 4                  | 1             | .             | 22                               |
| Clay and Eleventh streets, southeast corner....x                   | 21                   | 4                  | 1             | .             | 21                               |
| Clay and Twelfth streets, southwest corner....x                    | 25                   | 4                  | 1             | .             | 26                               |
| Clay and Thirteenth streets, northeast corner....x                 | 15                   | 4                  | .             | 1             | 68                               |
| Clay and Eighteenth streets, northwest corner....x                 | 25                   | 4                  | 1             | .             | 40                               |
| Church Hill avenue and Twenty-second street, northeast corner....x | 14                   | 4                  | 1             | .             | 39                               |
| Clay and Twenty-third streets, southwest corner....x               | 25                   | 4                  | 1             | .             | 36                               |
| Clay and Twenty-fourth streets, northwest corner....x              | 18                   | 4                  | 1             | .             | 33                               |
| Clay and Twenty-fifth streets, southeast corner....x               | 18                   | 4                  | .             | 1             | 30                               |
| Clay and Twenty-sixth streets, southeast corner....x               | 13                   | 4                  | 1             | .             | 30                               |
| Clay and Twenty-seventh streets, northwest corner....x             | 35                   | 4                  | 1             | .             | 28                               |
| Clay and Twenty-eighth streets, northwest corner....x              | 35                   | 4                  | .             | 1             | 24                               |
| Clay and Twenty-ninth streets, northeast corner....x               | 35                   | 4                  | 1             | .             | 24                               |

Sign x means branches on cross streets.

TABLE No. 9—CONTINUED.

*Fire Hydrants.*

| LOCATION   | Length of<br>Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs.<br>per Square Inch |
|--|-------------------------|--------------------|---------------|---------------|-------------------------------------|
| Clay and Thirtieth streets, northeast corner.....                          | 35                      | 4                  | 1             | • • •         | 25                                  |
| Clay and Thirty-first streets, northwest corner.....                       | 29                      | 4                  | 1             | • • •         | 30                                  |
| Clay and Thirty-third streets, southwest corner...x                        | 10                      | 4                  | 1             | • • •         | 32                                  |
| Clay and Thirty-fourth streets, southwest corner...x                       | 16                      | 4                  | 1             | • • •         | 35                                  |
| Clay and Thirty-fifth streets, northwest corner.....                       | 10                      | 4                  | 1             | • • •         | 38                                  |
| Clay and Thirty-sixth streets, southwest corner.....                       | 11                      | 4                  | 1             | • • •         | 36                                  |
| Carrington street, 320 feet west of Mosby street.....                      | 6                       | 4                  | 1             | • • •         | 36                                  |
| Carrington and Mosby streets, southwest corner...x                         | 12                      | 4                  | 1             | • • •         | 36                                  |
| Carrington and Twenty-second or Scott streets, south-<br>west corner.....x | 10                      | 4                  | 1             | • • •         | 39                                  |
| Carrington and Tulip streets, southwest corner.....x                       | 9                       | 4                  | 1             | • • •         | 37                                  |
| Crouch between Sixth and Seventh streets.....x                             | 25                      | 4                  | 1             | • • •         | 21                                  |
| Crouch and Sixth streets, southwest corner.....                            | 8                       | 4                  | 1             | • • •         | 26                                  |
| Coutts and St. Paul streets, southwest corner.....                         | 6                       | 4                  | 1             | • • •         | 30                                  |
| Coutts and First streets, northeast corner.....x                           | 25                      | 4                  | 1             | • • •         | 30                                  |
| Coutts and Second streets, southwest corner.....                           | 25                      | 4                  | 1             | • • •         | 31                                  |
| Dance street, west of Reservoir street.....                                | 6                       | 4                  | 1             | • • •         | 26                                  |
| Dock street and Upper Gas Works.....                                       | 3                       | 3                  | 1             | • • •         | 59                                  |
| Dock and Fourteenth streets, northwest corner...x                          | 23                      | 4                  | 1             | • • •         | 58                                  |
| Dock (south) and Seventeenth streets, southwest cor-<br>ner.....           | 12                      | 4                  | 1             | • • •         | 58                                  |
| Dock (north) and Seventeenth streets, northwest cor-<br>ner.....x          | 17                      | 4                  | 1             | • • •         | 54                                  |
| Dock (south) and Eighteenth streets, southeast cor-<br>ner.....x           | 15                      | 4                  | 1             | • • •         | 60                                  |
| Dock street near Pear street, north side.....                              | 18                      | 4                  | 1             | • • •         | 55                                  |
| Denny and Second streets, southwest corner.....x                           | 17                      | 4                  | 1             | • • •         | 46                                  |
| Denny and Fourth streets, northeast corner.....x                           | 7                       | 4                  | 1             | • • •         | 35                                  |
| Denny and Sixth streets, northwest corner.....x                            | 8                       | 4                  | 1             | • • •         | 41                                  |
| Denny and Seventh streets, northeast corner.....x                          | 17                      | 4                  | 1             | • • •         | 40                                  |
| Duval and St. Paul streets, northeast corner.....x                         | 29                      | 4                  | 1             | • • •         | 24                                  |
| Duval and St. James streets, southeast corner.....x                        | 10                      | 4                  | 1             | • • •         | 23                                  |
| Duval and St. Peter streets, southeast corner.....x                        | 13                      | 4                  | 1             | • • •         | 26                                  |
| Duval and First streets, northeast corner.....                             | 20                      | 4                  | 1             | • • •         | 27                                  |
| Duval and Clarke streets, southwest corner.....                            | 20                      | 4                  | • • •         | • • •         | 26                                  |
| Duval and Judah streets, southwest corner.....                             | 20                      | 4                  | 1             | • • •         | 30                                  |
| Duval street and Brook avenue, northeast corner...x                        | 20                      | 4                  | • • •         | • • •         | 32                                  |
| Duval and Second streets, north east corner.....x                          | 20                      | 4                  | • • •         | 1             | 30                                  |
| Duval and Fourth streets, southwest corner.....x                           | 20                      | 4                  | • • •         | 1             | 29                                  |
| Duval and Fifth streets, northeast corner.....                             | 13                      | 4                  | 1             | • • •         | 29                                  |
| Duval and Sixth streets, northwest corner.....                             | 25                      | 4                  | • • •         | 1             | 28                                  |
| Eighth street, west side, 385 feet north of Leigh<br>street.....x          | 25                      | 4                  | 1             | • • •         | 22                                  |
| Eleventh street, west side, 85 feet north of Byrd<br>street.....x          | 10                      | 4                  | 1             | • • •         | 44                                  |
| Eleventh street, between Main and Cary streets, east<br>side.....x         | 9                       | 4                  | 1             | • • •         | 40                                  |
| Eleventh street, north of Clay street.....                                 | 20                      | 4                  | 1             | • • •         | 30                                  |
| Elm and Poplar streets, southwest corner.....x                             | 17                      | 4                  | 1             | • • •         | 52                                  |
| Elm street, 132 feet south of Lester street.....x                          | 14                      | 4                  | 1             | • • •         | 55                                  |
| Franklin and Ryland streets, northwest corner...x                          | 13                      | 4                  | 1             | • • •         | 72                                  |
| Franklin and Harrison streets, southwest corner...                         | 25                      | 4                  | 1             | • • •         | 68                                  |
| Franklin and Shafer streets, southeast corner.....                         | 23                      | 4                  | 1             | • • •         | 68                                  |
| Franklin and Laurel streets, northeast corner.....                         | 25                      | 4                  | 1             | • • •         | 70                                  |
| Franklin and Pine streets, northeast corner.....                           | 24                      | 4                  | 1             | • • •         | 20                                  |
| Franklin and Belvidere streets, northwest corner...                        | 25                      | 4                  | 1             | • • •         | 24                                  |
| Franklin and Henry streets, northwest corner...x                           | 10                      | 4                  | 1             | • • •         | 26                                  |
| Franklin and Monroe streets, southwest corner.....                         | 25                      | 4                  | • • •         | 1             | 30                                  |
| Franklin and Madison streets, northwest corner...x                         | 9                       | 4                  | 1             | • • •         | 27                                  |
| Franklin and Jefferson streets, northwest corner...                        | 25                      | 4                  | 1             | • • •         | 25                                  |

Sign x means branches on cross streets.



TABLE No. 9—CONTINUED.

*Fire Hydrants.*

| LOCATION   | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|--|----------------------|--------------------|---------------|---------------|----------------------------------|
| Franklin and Adams streets, southwest corner.....                    | 25                   | 4                  | ..            | 1             | 21                               |
| Franklin and Foushee streets, northwest corner....x                  | 15                   | 4                  | 1             | ..            | 20                               |
| Franklin and First streets, southwest corner.....                    | 25                   | 4                  | ..            | 1             | 20                               |
| Franklin and Second streets, southwest corner....x                   | 21                   | 4                  | 1             | ..            | 19                               |
| Franklin and Third streets, southeast corner.....                    | 25                   | 4                  | ..            | 1             | 24                               |
| Franklin and Fourth streets, northwest corner....x                   | 25                   | 4                  | 1             | ..            | 26                               |
| Franklin and Fifth streets, southeast corner....x                    | 25                   | 4                  | 1             | ..            | 22                               |
| Franklin and Sixth streets, northwest corner....x                    | 25                   | 4                  | 1             | ..            | 28                               |
| Franklin and Seventh streets, southwest corner....x                  | 25                   | 4                  | 1             | ..            | 35                               |
| Franklin and Eighth streets, northeast corner....x                   | 25                   | 4                  | 1             | ..            | 36                               |
| Franklin and Ninth streets, northeast corner....x                    | 25                   | 4                  | 1             | ..            | 38                               |
| Franklin and Thirteenth streets, southwest corner...                 | 25                   | 4                  | 1             | ..            | 52                               |
| Franklin and Fourteenth streets, northwest corner..x                 | 25                   | 4                  | 1             | ..            | 59                               |
| Franklin and Fourteenth streets, southeast corner...                 | 10                   | 4                  | 1             | ..            | 63                               |
| Franklin and Fifteenth streets, northwest corner...                  | 25                   | 4                  | 1             | ..            | 81                               |
| Franklin street, southside, 200 feet east of Fifteenth street .....  | 25                   | 4                  | 1             | ..            | 84                               |
| Franklin and Union streets, southside.....                           | 10                   | 4                  | 1             | ..            | 87                               |
| Franklin and Mayo streets, northeast corner....x                     | 7                    | 3                  | 1             | ..            | 60                               |
| Franklin between Seventeenth and Eighteenth streets, south side..... | 21                   | 4                  | 1             | ..            | 87                               |
| Franklin and Eighteenth streets, southeast corner...                 | 25                   | 4                  | 1             | ..            | 85                               |
| Franklin and Nineteenth streets, southwest corner..                  | 25                   | 4                  | 1             | ..            | 50                               |
| Franklin and Nineteenth streets, southeast corner...                 | 9                    | 4                  | 1             | ..            | 58                               |
| Franklin and Twentieth streets, southeast corner...                  | 21                   | 4                  | 1             | ..            | 46                               |
| Franklin and Twenty-first streets, southwest corner..                | 25                   | 4                  | 1             | ..            | 73                               |
| Franklin and Twenty-second streets, north side.....                  | 22                   | 4                  | 1             | ..            | 64                               |
| Franklin and Twenty-second streets, southwest corner .....           | 10                   | 4                  | 1             | ..            | 65                               |
| Franklin and Twenty-third streets, northwest corner.                 | 25                   | 3                  | ..            | 1             | 60                               |
| Franklin and Twenty-fourth streets, southwest corner.                | 25                   | 4                  | 1             | ..            | 54                               |
| Franklin and Twenty-fifth streets, southeast corner.x                | 25                   | 3                  | 1             | ..            | 53                               |
| Franklin and Twenty-fifth streets, southwest corner..                | 9                    | 4                  | 1             | ..            | 53                               |
| Franklin and Twenty-sixth streets, northeast corner.x                | 21                   | 4                  | 1             | ..            | 35                               |
| Franklin and Twenty-seventh streets, southwest corner .....          | 25                   | 3                  | 1             | ..            | 34                               |
| Franklin and Twenty-eighth streets.....                              | 25                   | 3                  | 1             | ..            | 26                               |
| Franklin and Twenty-ninth streets, northwest corner .....            | 21                   | 4                  | 1             | ..            | 27                               |
| Franklin and Thirtieth streets, northwest corner....x                | 27                   | 4                  | 1             | ..            | 41                               |
| Franklin and Thirty-first streets, southwest corner.x                | 18                   | 4                  | 1             | ..            | 55                               |
| Federal and Sixth streets, southwest corner.....                     | 16                   | 4                  | 1             | ..            | 25                               |
| Federal and First streets, southwest corner....x                     | 25                   | 4                  | ..            | 1             | 26                               |
| Federal and St. James streets, southeast corner....x                 | 25                   | 4                  | 1             | ..            | 28                               |
| Federal and St. John streets, northwest corner....x                  | 25                   | 4                  | ..            | 1             | 30                               |
| Federal and St. Paul streets, southeast corner.....                  | 18                   | 4                  | 1             | ..            | 31                               |
| Federal and St. Peter streets, northeast corner.....                 | 17                   | 4                  | 1             | ..            | 33                               |
| Floyd and Auburn avenues, northwest corner....x                      | 10                   | 4                  | 1             | ..            | 64                               |
| Floyd avenue and Sheppard street, northwest corner.x                 | 9                    | 4                  | 1             | ..            | 65                               |
| Floyd avenue and Deep Run street, northwest corner.x                 | 9                    | 4                  | 1             | ..            | 67                               |
| Floyd avenue and Mulberry streets, northwest corner .....            | 10                   | 4                  | 1             | ..            | 61                               |
| Floyd avenue and Robinson street, southwest corner.x                 | 7                    | 4                  | 1             | ..            | 59                               |
| Floyd avenue and Elm street, northwest corner..x                     | 8                    | 4                  | 1             | ..            | 62                               |
| Floyd avenue and Sycamore street, southwest corner.x                 | 9                    | 4                  | 1             | ..            | 60                               |
| Floyd avenue and Park street, southwest corner..x                    | 8                    | 4                  | 1             | ..            | 64                               |
| Floyd avenue and Cedar street, northwest corner....x                 | 9                    | 4                  | 1             | ..            | 65                               |
| Floyd avenue and Rowland street, northwest corner.x                  | 10                   | 4                  | 1             | ..            | 65                               |
| Floyd avenue and Meadow street, northeast corner..x                  | 22                   | 4                  | 1             | ..            | 64                               |
| Floyd avenue and Lombardy street.....                                | 32                   | 4                  | 1             | ..            | 66                               |

Sign x means branches on cross streets.

TABLE No. 9—CONTINUED.

*Fire Hydrants.*

| LOCATION   | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|--|----------------------|--------------------|---------------|---------------|----------------------------------|
| Floyd avenue and Harvie street, northwest corner....                               | 18                   | 4                  |               | 1             | 66                               |
| Floyd avenue and Linden street, northeast corner....                               | 15                   | 4                  | 1             |               | 68                               |
| Floyd avenue and Beech street, northeast corner....                                | 15                   | 4                  | 1             |               | 68                               |
| Floyd avenue and Morris street, northwest corner..                                 | 15                   | 4                  | 1             |               | 67                               |
| Floyd avenue and Cherry street, northwest corner..x                                | 13                   | 4                  | 1             |               | 65                               |
| Floyd avenue and Laurel street, northwest corner....                               | 21                   | 4                  | 1             |               | 19                               |
| Fulton and Lewis streets, southeast corner.....x                                   | 8                    | 4                  | 1             |               | 50                               |
| Fulton and Nicholson streets, northwest corner....                                 | 15                   | 4                  | 1             |               | 39                               |
| Fulton and Graham streets, southwest corner.....x                                  | 15                   | 4                  | 1             |               | 40                               |
| Fulton and Louisiana streets, northwest corner.....x                               | 10                   | 4                  | 1             |               | 39                               |
| Fulton and State streets, northwest corner.....x                                   | 9                    | 4                  | 1             |               | 38                               |
| Fulton and Orleans streets, southeast corner.....x                                 | 10                   | 4                  | 1             |               | 38                               |
| Fourth street between Bates and Hospital (Colored Almshouse) .....                 | 25                   | 4                  | 1             |               | 28                               |
| Fourteenth street, west side, at alley north of Cary..x                            | 25                   | 3                  |               | 1             | 47                               |
| Fourteenth street, west side, north of Dock street..x                              | 19                   | 4                  | 1             |               | 56                               |
| Fourteenth street, west side, north of Mayo's bridge..                             | 5                    | 4                  | 1             |               |                                  |
| Fifteenth and Leigh streets, northwest corner....x                                 | 27                   | 4                  | 1             |               | 40                               |
| Fifteenth and Poplar streets, northeast corner.....x                               | 20                   | 3                  |               | 1             | 48                               |
| Fifteenth street, west side, at alley north of Cary st..x                          | 25                   | 3                  |               | 1             | 55                               |
| Fifteenth street, east side, at alley north of Main street .....                   | 16                   | 4                  | 1             |               | 53                               |
| Fifteenth street, north of Franklin street at Cross alley .....                    | 25                   | 3                  | 1             |               | 54                               |
| Government road and Thirty-sixth street, northeast corner .....                    | 15                   | 4                  | 1             |               | 35                               |
| Grace street between Boulevard and Deep Run street, northwest corner of alley..... | 17                   | 4                  | 1             |               | 71                               |
| Grace and Cedar streets, southwest corner.....                                     | 14                   | 4                  |               | 1             | 63                               |
| Grace and Ryland streets, northwest corner.....x                                   | 16                   | 4                  | 1             |               | 13                               |
| Grace street and Richmond College.....   | 2                    | 4                  | 1             |               | 66                               |
| Grace and Harrison streets, southwest corner.....                                  | 33                   | 4                  | 1             |               | 68                               |
| Grace and Shafer streets, southwest corner.....                                    | 25                   | 4                  | 1             |               | 68                               |
| Grace and Laurel streets, southeast corner.....                                    | 25                   | 4                  | 1             |               | 69                               |
| Grace and Pine streets, northeast corner.....                                      | 25                   | 4                  | 1             |               | 23                               |
| Grace and Henry streets, southeast corner.....                                     | 25                   | 4                  | 1             |               | 27                               |
| Grace and Monroe streets, southwest corner.....x                                   | 16                   | 4                  | 1             |               | 26                               |
| Grace and Madison streets, northeast corner.....                                   | 25                   | 4                  |               | 1             | 24                               |
| Grace and Jefferson streets, southeast corner.....x                                | 15                   | 4                  |               | 1             | 24                               |
| Grace and Adams streets, northwest corner.....                                     | 25                   | 4                  | 1             |               | 25                               |
| Grace and Foushee streets, northeast corner.....                                   | 25                   | 4                  | 1             |               | 24                               |
| Grace and First streets, southeast corner.....x                                    | 20                   | 4                  | 1             |               | 20                               |
| Grace and Second streets, southeast corner.....                                    | 25                   | 4                  | 1             |               | 24                               |
| Grace and Third streets, southwest corner.....                                     | 17                   | 4                  | 1             |               | 21                               |
| Grace (north) on east side Third street (engine house) .....                       | 12                   | 4                  | 1             |               | 26                               |
| Grace and Fourth streets, northeast corner.....x                                   | 25                   | 4                  |               | 1             | 24                               |
| Grace and Fifth streets, southeast corner.....x                                    | 21                   | 4                  | 1             |               | 18                               |
| Grace and Sixth streets, southeast corner.....                                     | 25                   | 4                  | 1             |               | 24                               |
| Grace and Seventh streets, northwest corner.....x                                  | 25                   | 4                  | 1             |               | 25                               |
| Grace and Eighth streets, northeast corner.....                                    | 25                   | 3                  | 1             |               | 26                               |
| Grace and Ninth streets, southeast corner.....x                                    | 21                   | 4                  | 1             |               | 27                               |
| Grace street east, in Capitol Square.....  | 12                   | 4                  | 1             |               | 22                               |
| Grace street east, in Capitol Square.....  | 12                   | 4                  | 1             |               | 22                               |
| Grace and Seventeenth streets, southeast corner....                                | 25                   | 4                  | 1             |               | 52                               |
| Grace and Eighteenth streets, northeast corner.....x                               | 25                   | 4                  | 1             |               | 49                               |
| Grace and Nineteenth streets, northwest corner....                                 | 21                   | 4                  | 1             |               | 45                               |
| Grace and Twentieth streets, southwest corner.....x                                | 25                   | 4                  | 1             |               | 34                               |
| Grace and Twenty-first streets, southwest corner....                               | 11                   | 4                  | 1             |               | 29                               |
| Grace and Twenty-second streets, northeast corner..                                | 25                   | 3                  | 1             |               | 29                               |

Sign x means branches on cross streets.



TABLE No. 9—CONTINUED.

*Fire Hydrants.*

| LOCATION   | Length of<br>Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs.<br>per Square Inch |
|--|-------------------------|--------------------|---------------|---------------|-------------------------------------|
| Grace and Twenty-third streets, southeast corner....                   | 20                      | 4                  | 1             |               | 28                                  |
| Grace and Twenty-fourth streets, northeast corner....                  | 20                      | 4                  | 1             |               | 24                                  |
| Grace and Twenty-fifth streets, southeast corner....                   | 25                      | 3                  | 1             |               | 32                                  |
| Grace and Twenty-sixth streets, northwest corner...x                   | 20                      | 4                  | 1             |               | 26                                  |
| Grace and Twenty-seventh streets, southwest corner..                   | 25                      | 4                  | 1             |               | 26                                  |
| Grace and Twenty-eighth streets, southwest corner..                    | 25                      | 4                  | 1             |               | 25                                  |
| Grace and Twenty-ninth street, northwest corner...x                    | 22                      | 4                  | 1             |               | 27                                  |
| Grace and Thirty-second streets, northwest corner..                    | 25                      | 4                  | 1             |               | 28                                  |
| Grove avenue and Roseneath road, southeast corner..                    | 14                      | 4                  | 1             |               | 65                                  |
| Grove and Auburn avenues southeast corner.....                         | 14                      | 4                  | 1             |               | 64                                  |
| Grove and West avenues, southeast corner.....                          | 14                      | 4                  | 1             |               | 66                                  |
| Grove avenue and Sheppard street, southwest corner..                   | 14                      | 4                  | 1             |               | 64                                  |
| Grove avenue and Deep Run street, southwest corner..                   | 14                      | 4                  |               |               | 65                                  |
| Grove avenue and Beech street, southwest corner..                      | 15                      | 4                  | 1             |               | 64                                  |
| Grove avenue and Harvie street, northwest corner..                     | 15                      | 4                  | 1             |               | 64                                  |
| Grove avenue and Morris street, southeast corner...x                   | 10                      | 4                  | 1             |               | 64                                  |
| Grove avenue and Plum street, southeast corner.....                    | 24                      | 4                  | 1             |               | 67                                  |
| Grove avenue and Park street, northeast corner.....                    | 13                      | 4                  | 1             |               | 65                                  |
| Grove avenue and Vine street, northwest corner...x                     | 7                       | 4                  | 1             |               | 63                                  |
| Grove avenue and Robinson street, southwest corner..                   | 15                      | 4                  | 1             |               | 63                                  |
| Grove avenue and Lombardy street, southeast corner.x                   | 19                      | 4                  | 1             |               | 65                                  |
| Grove avenue and Boulevard, southwest corner.....                      | 14                      | 4                  | 1             |               | 65                                  |
| Grove avenue and Rowland street, northwest corner..                    | 29                      | 4                  | 1             |               | 66                                  |
| Grove avenue and Meadow street, southwest corner..                     | 18                      | 4                  | 1             |               | 66                                  |
| Grove avenue and Strawberry street, northwest corner<br>.....x         | 16                      | 4                  | 1             |               | 64                                  |
| Grove avenue and Cedar street, northwest corner....                    | 28                      | 4                  | 1             |               | 63                                  |
| Goddin and Tyler streets, southeast corner.....                        | 15                      | 4                  | 1             |               | 39                                  |
| Goddin and Calhoun streets, northeast corner.....                      | 15                      | 4                  | 1             |               | 36                                  |
| Graham and Erin streets, northeast corner.....x                        | 10                      | 4                  | 1             |               | 44                                  |
| Graham and Marshall streets (Fulton) northwest corner<br>.....x        | 10                      | 4                  | 1             |               | 43                                  |
| Hermitage road, north of Leigh street (Roseneck<br>Brewery) .....      |                         | 4                  | 1             |               |                                     |
| Hanover street and Boulevard, southeast corner....                     | 18                      | 4                  | 1             |               | 66                                  |
| Hanover and Robinson streets, southeast corner.....                    | 16                      | 4                  | 1             |               | 67                                  |
| Hanover and Cedar streets, northwest corner....x                       | 12                      | 4                  | 1             |               | 67                                  |
| Hanover and Elin streets, southeast corner.....                        | 15                      | 4                  | 1             |               | 67                                  |
| Hanover and Sycamore streets, southwest corner....                     | 15                      | 4                  | 1             |               | 67                                  |
| Hanover and Rowland streets, southwest corner....                      | 16                      | 4                  | 1             |               | 65                                  |
| Hanover and Lombardy streets, northeast corner....                     | 27                      | 4                  | 1             |               | 65                                  |
| Hanover and Vine streets, northeast corner.....                        | 14                      | 4                  | 1             |               | 67                                  |
| Hanover and Park streets, southwest corner.....                        | 16                      | 4                  | 1             |               | 65                                  |
| Hanover and Walnut streets, southwest corner.....                      | 15                      | 4                  | 1             |               | 66                                  |
| Hill and St. James streets, southwest corner....x                      | 16                      | 4                  | 1             |               | 30                                  |
| Hill and St. Paul streets, southeast corner....x                       | 14                      | 4                  | 1             |               | 35                                  |
| Hill and St. John streets, southeast corner....x                       | 12                      | 4                  | 1             |               | 30                                  |
| Hickory and Calhoun streets, southwest corner....x                     | 12                      | 4                  | 1             |               | 37                                  |
| Holly and Church streets, northwest corner....x                        | 15                      | 4                  | 1             |               | 44                                  |
| Holly and Pine streets, northeast corner....x                          | 13                      | 4                  |               | 1             | 26                                  |
| Holly street and R. & A. R. R., southwest corner....                   |                         | 3                  | 1             |               | 55                                  |
| Howard and Rowe streets, southwest corner....x                         | 15                      | 4                  |               | 1             | 32                                  |
| Hospital street between Second and Fourth streets<br>(Almshouse) ..... | 20                      | 4                  |               | 1             | 31                                  |
| Hospital street between Second and Fourth streets<br>(inside) .....    | 20                      | 4                  |               | 1             |                                     |
| Hospital and Second streets, southwest corner....                      | 24                      | 4                  | 1             |               | 36                                  |
| Hospital and Fourth streets, southwest corner.....                     | 3                       | 4                  | 1             |               | 35                                  |
| Hospital and Fifth streets, southeast corner....x                      | 18                      | 4                  | 1             |               | 32                                  |
| Hospital and Seventh streets, northwest corner.....                    | 11                      | 4                  | 1             |               | 56                                  |

Sign x means branches on cross streets.

TABLE No. 9—CONTINUED.

*Fire Hydrants.*

| LOCATION   | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|--|----------------------|--------------------|---------------|---------------|----------------------------------|
| Ivy and Robinson streets, southeast corner.....                  | 10                   | 4                  | 1             | ...           | 63                               |
| Ivy and Cedar streets, southeast corner.....x                    | 11                   | 4                  | 1             | ...           | 65                               |
| Ivy and Sycamore streets, southeast corner.....                  | 9                    | 4                  | 1             | ...           | 70                               |
| Ivy and Meadow streets, southwest corner.....x                   | 9                    | 4                  | 1             | ...           | 68                               |
| Jackson and St. James streets, northeast corner.....             | 20                   | 4                  | 1             | ...           | 27                               |
| Jackson and Price streets, northeast corner.....                 | 20                   | 4                  | 1             | ...           | 26                               |
| Jackson and St. Peter streets, southeast corner.....             | 20                   | 4                  | 1             | ...           | 27                               |
| Jackson and Third streets, southwest corner.....x                | 20                   | 4                  | 1             | ...           | 26                               |
| Jackson and Fourth streets, southeast corner.....                | 20                   | 4                  | ...           | 1             | 30                               |
| Jackson and Fifth streets, northwest corner.....                 | 20                   | 4                  | 1             | ...           | 25                               |
| Kensington and Cedar streets, southeast corner...x               | 21                   | 4                  | 1             | ...           | 62                               |
| Kensington and Robinson streets, southeast corner..              | 16                   | 4                  | 1             | ...           | 62                               |
| Kensington and Elm streets, southwest corner....x                | 9                    | 4                  | 1             | ...           | 62                               |
| Laurel street, west side, south of Holly street...x              | 13                   | 4                  | 1             | ...           | 34                               |
| Laurel and Holly streets, southeast corner.....x                 | 12                   | 4                  | 1             | ...           | 26                               |
| Leigh street, south side R. F. & P. shops.....                   | ...                  | ...                | ...           | ...           | 24                               |
| Leigh and Harrison streets, southeast corner.....                | 13                   | 4                  | 1             | ...           | 25                               |
| Leigh and Kinney streets, northwest corner.....                  | 23                   | 4                  | 1             | ...           | 19                               |
| Leigh and Lombardy streets, northeast corner.....                | 11                   | 4                  | 1             | ...           | 14                               |
| Leigh and Bowe streets, northwest corner.....                    | 12                   | 4                  | 1             | ...           | 17                               |
| Leigh and Hancock streets, southeast corner.....                 | 13                   | 4                  | 1             | ...           | 29                               |
| Leigh and Gilmer streets, southeast corner.....                  | 13                   | 4                  | 1             | ...           | 21                               |
| Leigh and Graham streets, northwest corner.....                  | 25                   | 4                  | 1             | ...           | 26                               |
| Leigh and Munford streets, southeast corner.....                 | 25                   | 4                  | 1             | ...           | 27                               |
| Leigh and Brook avenue, southeast corner.....                    | 25                   | 4                  | ...           | 1             | 26                               |
| Leigh and St. Peter streets, northeast corner.....               | 25                   | 4                  | ...           | 1             | 26                               |
| Leigh and Adams streets, southwest corner.....                   | 25                   | 4                  | ...           | 1             | 25                               |
| Leigh and St. James streets, northwest corner.....               | 25                   | 4                  | ...           | 1             | 25                               |
| Leigh and First streets, northwest corner.....                   | 25                   | 4                  | ...           | 1             | 24                               |
| Leigh and Second streets, northwest corner.....x                 | 25                   | 4                  | 1             | ...           | 25                               |
| Leigh and Third streets, northeast corner.....                   | 12                   | 4                  | 1             | ...           | 24                               |
| Leigh and Fourth streets, southeast corner.....x                 | 25                   | 4                  | 1             | ...           | 24                               |
| Leigh and Fifth streets, southwest corner.....                   | 21                   | 4                  | 1             | ...           | 21                               |
| Leigh and Sixth streets, northeast corner.....                   | 25                   | 3                  | 1             | ...           | 21                               |
| Leigh and Seventh streets, southeast corner.....x                | 25                   | 4                  | ...           | 1             | 22                               |
| Leigh and Eighth streets, southwest corner.....                  | 25                   | 4                  | 1             | ...           | 21                               |
| Leigh and Ninth streets, southwest corner.....                   | 18                   | 4                  | 1             | ...           | 22                               |
| Leigh and Tenth streets, northeast corner.....                   | 21                   | 4                  | 1             | ...           | 27                               |
| Leigh and Thirteenth streets, southwest corner...x               | 20                   | 4                  | 1             | ...           | 77                               |
| Leigh and Twenty-second streets, southeast corner.x              | 11                   | 4                  | 1             | ...           | 36                               |
| Leigh and Twenty-third streets, northwest corner..x              | 9                    | 4                  | 1             | ...           | 35                               |
| Leigh and Twenty-fourth streets, southeast corner..x             | 25                   | 4                  | 1             | ...           | 38                               |
| Leigh and Twenty-fifth streets, southeast corner...x             | 25                   | 4                  | ...           | 1             | 32                               |
| Leigh and Twenty-sixth streets, southwest corner...x             | 25                   | 4                  | 1             | ...           | 33                               |
| Leigh and Twenty-seventh streets, northwest corner..             | 27                   | 4                  | 1             | ...           | 30                               |
| Leigh and Twenty-eighth streets, southeast corner..x             | 25                   | 4                  | 1             | ...           | 25                               |
| Leigh and Twenty-ninth streets, southeast corner..x              | 25                   | 4                  | 1             | ...           | 23                               |
| Leigh and Thirtieth streets, southeast corner.....x              | 27                   | 4                  | 1             | ...           | 25                               |
| Leigh and Thirty-first streets, southwest corner...x             | 15                   | 4                  | 1             | ...           | 28                               |
| Leigh and Thirty-third streets, southwest corner...x             | 16                   | 4                  | 1             | ...           | 33                               |
| Lester street, east side, north of Williamsburg avenue .....     | 20                   | 4                  | 1             | ...           | 46                               |
| Lester and Ash streets, southwest corner.....                    | 22                   | 4                  | 1             | ...           | 55                               |
| Lester and Pear streets, southeast corner.....x                  | 14                   | 4                  | 1             | ...           | 27                               |
| Lester and Elm streets, northwest corner.....                    | 14                   | 4                  | 1             | ...           | 55                               |
| Lester and Hague streets, northwest corner.....                  | 22                   | 4                  | 1             | ...           | 61                               |
| Lester street, north side, 400 feet east of Gillie's creek ..... | 22                   | 4                  | 1             | ...           | 54                               |
| Lester and Nicholson streets, southeast corner.....              | 22                   | 4                  | 1             | ...           | 48                               |
| Lester and Louisiana streets, northwest corner.....              | 22                   | 4                  | 1             | ...           | 37                               |

Sign x means branches on cross streets.

TABLE No. 9.—CONTINUED.

*Fire Hydrants.*

| LOCATION   | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|--|----------------------|--------------------|---------------|---------------|----------------------------------|
| Lester and Orleans streets, northeast corner.....                    | 6                    | 4                  | 1             | ...           | 51                               |
| Louisiana and Second streets.....x                                   | 22                   | 4                  | 1             | ...           | 40                               |
| Louisiana and Fourth streets, southeast corner....x                  | 18                   | 4                  | 1             | ...           | 36                               |
| Louisiana and Sixth streets, southeast corner....x                   | 18                   | 4                  | 1             | ...           | 37                               |
| Louisiana and Gilliam streets, southwest corner....x                 | 17                   | 4                  | 1             | ...           | 40                               |
| Main and Sheppard streets, northwest corner.....x                    | 9                    | 4                  | 1             | ...           | 66                               |
| Main and Deep Run streets, northwest corner.....x                    | 9                    | 4                  | 1             | ...           | 65                               |
| Main and Mulberry streets, southwest corner.....                     | 10                   | 4                  | 1             | ...           | 59                               |
| Main and Robinson streets, southwest corner.....                     | 10                   | 4                  | 1             | ...           | 59                               |
| Main and Cedar streets, southwest corner.....                        | 10                   | 4                  | 1             | ...           | 59                               |
| Main and Elm streets, southwest corner.....                          | 10                   | 4                  | 1             | ...           | 60                               |
| Main and Strawberry streets, northwest corner....                    | 10                   | 4                  | 1             | ...           | 62                               |
| Main and Sycamore streets, southwest corner.....                     | 10                   | 4                  | 1             | ...           | 64                               |
| Main and Rowland streets, northwest corner.....                      | 10                   | 4                  | 1             | ...           | 65                               |
| Main and Meadow streets, northwest corner.....                       | 10                   | 4                  | 1             | ...           | 64                               |
| Main and Park streets, southwest corner.....                         | 10                   | 4                  | 1             | ...           | 64                               |
| Main and Walnut streets, southwest corner.....                       | 10                   | 4                  | 1             | ...           | 64                               |
| Main and Vine streets, southwest corner.....                         | 10                   | 4                  | 1             | ...           | 61                               |
| Main and Lombardy streets, southeast corner.....                     | 15                   | 4                  | 1             | ...           | 15                               |
| Main and Belvidere streets, northeast corner.....x                   | 12                   | 4                  | 1             | ...           | 24                               |
| Main and Plum streets, northwest corner.....                         | 25                   | 4                  | 1             | ...           | 15                               |
| Main and Harvie streets, southwest corner.....                       | 15                   | 4                  | 1             | ...           | 17                               |
| Main and Linden streets, northwest corner.....                       | 10                   | 4                  | 1             | ...           | 23                               |
| Main and Short streets, northwest corner.....x                       | 27                   | 4                  | 1             | ...           | 18                               |
| Main and Reservoir streets, southwest corner.....                    | 13                   | 4                  | 1             | ...           | 18                               |
| Main and Morris streets, southeast corner.....x                      | 21                   | 4                  | 1             | ...           | 20                               |
| Main and Cherry streets, southeast corner.....                       | 25                   | 4                  | 1             | ...           | 18                               |
| Main and Laurel streets, northwest corner.....x                      | 15                   | 4                  | 1             | ...           | 18                               |
| Main and Pine streets, southwest corner.....x                        | 18                   | 4                  | 1             | ...           | 21                               |
| Main and Monroe streets, northeast corner.....                       | 25                   | 4                  | 1             | ...           | 32                               |
| Main and Madison streets, southwest corner.....                      | 25                   | 4                  | 1             | 1             | 35                               |
| Main and Jefferson streets, southeast corner.....                    | 18                   | 4                  | 1             | ...           | 24                               |
| Main and Adams streets, southwest corner.....x                       | 21                   | 4                  | 1             | ...           | 25                               |
| Main and Foushee streets, northwest corner.....x                     | 15                   | 4                  | 1             | ...           | 25                               |
| Main and First streets, southeast corner.....x                       | 21                   | 4                  | 1             | ...           | 24                               |
| Main and Second streets, southeast corner.....                       | 25                   | 3                  | ...           | 1             | 22                               |
| Main and Third streets, southeast corner.....                        | 21                   | 4                  | 1             | ...           | 24                               |
| Main and Fourth streets, northeast corner.....                       | 25                   | 4                  | 1             | ...           | 37                               |
| Main and Fifth streets, southeast corner.....x                       | 19                   | 4                  | 1             | ...           | 21                               |
| Main and Sixth streets, northwest corner.....                        | 25                   | 4                  | 1             | ...           | 34                               |
| Main and Seventh streets, northeast corner.....x                     | 21                   | 4                  | 1             | ...           | 39                               |
| Main and Seventh streets, southwest corner.....                      | 25                   | 4                  | 1             | ...           | 42                               |
| Main and Eighth streets, southwest corner.....                       | 26                   | 4                  | 1             | ...           | 22                               |
| Main and Eighth streets, northeast corner.....                       | 9                    | 4                  | 1             | ...           | 50                               |
| Main, north side, 50 feet west of Ninth street.....                  | 9                    | 4                  | 1             | ...           | 54                               |
| Main and Ninth streets, southeast corner.....x                       | 25                   | 4                  | 1             | ...           | 29                               |
| Main, west side of Ninth street, 15 feet north of<br>Main .....      | 14                   | 4                  | 1             | ...           | 52                               |
| Main and Tenth streets, northeast corner.....                        | 10                   | 4                  | 1             | ...           | 56                               |
| Main and Eleventh streets, northwest corner.....x                    | 27                   | 4                  | 1             | ...           | 50                               |
| Main and Twelfth streets, northwest corner.....                      | 25                   | 4                  | ...           | 1             | 59                               |
| Main and Twelfth streets, southeast corner.....x                     | 10                   | 4                  | 1             | ...           | 31                               |
| Main and Thirteenth streets, northwest corner.....                   | 10                   | 4                  | 1             | ...           | 65                               |
| Main and Fourteenth streets, southeast corner.....x                  | 21                   | 4                  | 1             | ...           | 42                               |
| Main street, north side, 150 feet west of Fourteenth<br>street ..... | 25                   | 3                  | 1             | ...           | 42                               |
| Main street, south side, 165 feet east of Fourteenth<br>street ..... | 25                   | 3                  | 1             | ...           | 50                               |
| Main street and Locust alley, northeast corner.....                  | 25                   | 4                  | 1             | ...           | 51                               |

Sign x means branches on cross streets.

TABLE No. 9.—CONTINUED.

*Fire Hydrants.*

| LOCATION  | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|---|----------------------|--------------------|---------------|---------------|----------------------------------|
| Main street, north side, 225 feet east of Fifteenth street                            | 25                   | 4                  | 1             | ..            | 58                               |
| Main street, north side, 90 feet west of Seventeenth street                           | 25                   | 4                  | 1             | ...           | 58                               |
| Main and Thirteenth streets, southwest corner....x                                    | 10                   | 4                  | 1             | ...           | 38                               |
| Main and Seventeenth streets, southeast corner....x                                   | 25                   | 4                  | 1             | ...           | 58                               |
| Main and Eighteenth streets, southeast corner....x                                    | 25                   | 4                  | ..            | 1             | 52                               |
| Main and Eighteenth streets, northwest corner....x                                    | 10                   | 4                  | 1             | ...           | 52                               |
| Main and Nineteenth streets, northwest corner....x                                    | 25                   | 4                  | 1             | ...           | 48                               |
| Main and Twentieth streets, northwest corner....x                                     | 25                   | 4                  | 1             | ...           | 45                               |
| Main street, southside, between Twentieth and Twenty-first street (engine house)..... | 25                   | 4                  | 1             | ..            | 44                               |
| Main and Twentieth streets, southeast corner....x                                     | 21                   | 4                  | 1             | ...           | 45                               |
| Main and Twenty-first streets, northwest corner....x                                  | 25                   | 3                  | ..            | 1             | 42                               |
| Main and Twenty-first streets, southeast corner....x                                  | 23                   | 4                  | 1             | ...           | 44                               |
| Main and Twenty-second streets, southeast corner....x                                 | 25                   | 4                  | 1             | ...           | 38                               |
| Main and Twenty-second streets, northwest corner....                                  | 10                   | 4                  | 1             | ...           | 38                               |
| Main and Twenty-third streets, northwest corner....                                   | 21                   | 4                  | 1             | ...           | 36                               |
| Main and Twenty-fourth streets, northwest corner....                                  | 25                   | 4                  | 1             | ...           | 35                               |
| Main and Twenty-fifth streets, southeast corner....                                   | 25                   | 4                  | 1             | ...           | 35                               |
| Main and Twenty-fifth streets, northwest corner....                                   | 10                   | 4                  | 1             | ..            | 34                               |
| Main and Twenty-sixth streets, northwest corner....                                   | 25                   | 4                  | 1             | ...           | 36                               |
| Main and Twenty-seventh streets, northeast corner....                                 | 25                   | 4                  | 1             | ..            | 30                               |
| Main and Lester streets, southeast corner.....  | 25                   | 4                  | ..            | 1             | 31                               |
| Main and Twenty-ninth streets, northeast corner....x                                  | 25                   | 4                  | 1             | ...           | 30                               |
| Main and Thirtieth streets, northwest corner....x                                     | 25                   | 4                  | ..            | 1             | 32                               |
| Main and Thirty-first streets, northwest corner....                                   | 17                   | 4                  | 1             | ...           | 51                               |
| M and Ninth streets, southeast corner.....x   | 25                   | 4                  | ...           | 1             | 25                               |
| M and Tenth streets.....x   | 25                   | 4                  | ...           | 1             | 22                               |
| M and Thirteenth streets, northwest corner....x                                       | 22                   | 4                  | 1             | ...           | 45                               |
| M and Thirty-third streets, southwest corner....x                                     | 9                    | 4                  | ..            | 1             | 27                               |
| M and Twenty-fourth streets, southeast corner....x                                    | 15                   | 4                  | 1             | ...           | 30                               |
| M and Twenty-fifth streets, northwest corner....x                                     | 25                   | 4                  | 1             | ...           | 35                               |
| M and Twenty-sixth streets, southwest corner....x                                     | 21                   | 4                  | 1             | ...           | 31                               |
| M and Twenty-seventh streets, southeast corner....x                                   | 15                   | 4                  | 1             | ...           | 29                               |
| M and Twenty-eighth streets, northeast corner....x                                    | 10                   | 4                  | 1             | ...           | 27                               |
| M and Twenty-ninth streets, southeast corner....x                                     | 8                    | 4                  | 1             | ...           | 23                               |
| M and Thirtieth streets, northwest corner....x  | 16                   | 4                  | 1             | ...           | 21                               |
| M and Thirty-first streets, southwest corner....x                                     | 14                   | 4                  | 1             | ...           | 25                               |
| Meadow street, west side, at alley north of Franklin.x                                | 21                   | 4                  | 1             | ...           | 14                               |
| Marshall and Bowe streets, northwest corner....x                                      | 9                    | 4                  | 1             | ...           | 17                               |
| Marshall and Kinney streets, northeast corner....                                     | 22                   | 4                  | 1             | ...           | 18                               |
| Marshall and Norton streets, southeast corner....                                     | 20                   | 4                  | 1             | ...           | 19                               |
| Marshall and Graham streets, northwest corner....x                                    | 9                    | 4                  | 1             | ...           | 23                               |
| Marshall and Harrison streets, northeast corner....                                   | 21                   | 4                  | 1             | ...           | 23                               |
| Marshall and Hancock streets, southwest corner....                                    | 25                   | 4                  | ...           | 1             | 21                               |
| Marshall street, north side, between Hancock and Graham streets.....                  | 25                   | 4                  | 1             | ...           | 21                               |
| Marshall and Gilmer streets, northwest corner....                                     | 25                   | 4                  | 1             | ...           | 23                               |
| Marshall and Munford streets, southwest corner....                                    | 25                   | 4                  | 1             | ..            | 23                               |
| Marshall and Henry streets, southwest corner....                                      | 25                   | 3                  | 1             | ...           | 23                               |
| Marshall and Monroe streets, southeast corner....                                     | 25                   | 4                  | ..            | 1             | 24                               |
| Marshall and Madison streets, northwest corner....x                                   | 14                   | 4                  | 1             | ...           | 22                               |
| Marshall and Jefferson streets, northeast corner....                                  | 15                   | 4                  | 1             | ...           | 22                               |
| Marshall and Adams streets, northwest corner....                                      | 25                   | 4                  | ...           | 1             | 19                               |
| Marshall and First streets, northwest corner....                                      | 21                   | 4                  | 1             | ...           | 24                               |
| Marshall and Second streets, southeast corner....x                                    | 25                   | 4                  | 1             | ...           | 24                               |
| Marshall and Third streets, northeast corner....                                      | 25                   | 4                  | 1             | ...           | 23                               |
| Marshall and Fourth streets, northeast corner....                                     | 25                   | 4                  | ...           | 1             | 24                               |
| Marshall and Fifth streets, northeast corner....                                      | 25                   | 4                  | ...           | 1             | 24                               |

Sign x means branches on cross streets.



TABLE No. 9,—CONTINUED.

*Fire Hydrants.*

| LOCATION  | Length of Connection | Size of Connection | Double Nozzle | Single Nozzel | Pressure in Lbs. per Square Inch |
|---|----------------------|--------------------|---------------|---------------|----------------------------------|
| Marshall and Sixth streets, northeast corner.....               | 25                   | 4                  | 1             |               | 23                               |
| Marshall and Sixth streets, southwest corner.....               | 24                   | 4                  | 1             |               | 24                               |
| Marshall and Seventh streets, northwest corner....              | 21                   | 4                  | 1             |               | 21                               |
| Marshall and Eighth streets, northwest corner....x              | 25                   | 4                  | 1             |               | 20                               |
| Marshall and Ninth streets, northwest corner.....               | 21                   | 4                  | 1             |               | 17                               |
| Marshall and Tenth streets, northeast corner.....               | 25                   | 4                  | 1             |               | 22                               |
| Marshall and Eleventh streets, southwest corner....             | 25                   | 4                  |               | 1             | 25                               |
| Marshall and Twelfth streets, northwest corner.....             | 25                   | 4                  |               | 1             | 25                               |
| Marshall and Thirteenth streets, northeast corner....           | 23                   | 4                  | 1             |               | 40                               |
| Marshall and Fifteenth streets, southwest corner....            | 25                   | 4                  |               | 1             | 46                               |
| Marshall and Union streets, southeast corner.....               | 25                   | 3                  | 1             |               | 50                               |
| Marshall and Sixteenth streets, northeast corner....            | 16                   | 4                  | 1             |               | 58                               |
| Marshall and Seventeenth streets, northeast corner.x            | 25                   | 4                  |               | 1             | 45                               |
| Marshall and Eighteenth streets, northwest corner..x            | 25                   | 4                  | 1             |               | 48                               |
| Marshall and Nineteenth streets, southwest corner..x            | 25                   | 4                  | 1             |               | 66                               |
| Marshall and Twentieth streets, southeast corner....            | 9                    | 4                  | 1             |               | 56                               |
| Marshall and Twenty-first streets, southeast corner..           | 37                   | 4                  | 1             |               | 45                               |
| Marshall and Twenty-first streets, southwest corner..           | 14                   | 4                  | 1             |               | 36                               |
| Marshall and Twenty-second streets, northeast corner .....      | 25                   | 4                  | 1             |               | 35                               |
| Marshall and Twenty-third streets, northwest corner.x           | 15                   | 4                  | 1             |               | 33                               |
| Marshall and Twenty-fourth streets, northwest corner            | 25                   | 4                  |               | 1             | 29                               |
| Marshall and Twenty-fifth streets, northeast corner.x           | 21                   | 4                  | 1             |               | 29                               |
| Marshall and Twenty-sixth streets, northwest corner.            | 25                   | 4                  |               | 1             | 27                               |
| Marshall and Twenty-seventh streets, southeast corner .....     | 25                   | 4                  |               | 1             | 24                               |
| Marshall and Twenty-eighth streets, northeast corner.           | 25                   | 4                  |               | 1             | 25                               |
| Marshall and Twenty-ninth streets, southeast corner.x           | 20                   | 4                  | 1             |               | 27                               |
| Marshall and Thirtieth streets, northwest corner....            | 25                   | 4                  |               | 1             | 28                               |
| Marshall and Thirty-first streets, southeast corner....         | 21                   | 4                  | 1             |               | 29                               |
| Marshall and Thirty-second streets, northeast corner.           | 22                   | 4                  | 1             |               | 28                               |
| Marshall and Thirty-third streets, southwest corner..           | 22                   | 4                  | 1             |               | 31                               |
| Marshall and Thirty-fourth streets, northwest corner.x          | 16                   | 4                  | 1             |               | 30                               |
| Marshall and Thirty-seventh streets, southwest corner.          | 10                   | 4                  | 1             |               | 31                               |
| Mosby and Clay streets, northwest corner.....x                  | 12                   | 4                  | 1             |               | 22                               |
| Moore and Lombardy streets, southeast corner.....               | 7½                   | 4                  | 1             |               |                                  |
| Moore and Bowe streets, southwest corner.....                   | 7                    | 4                  | 1             |               | 17                               |
| Moore and Graham streets, southwest corner.....                 | 6                    | 4                  | 1             |               | 39                               |
| Moore and Gilmer streets, southwest corner.....                 | 19                   | 4                  | 1             |               | 40                               |
| Moore and Oak streets, southwest corner.....                    | 8                    | 4                  | 1             |               | 40                               |
| Moore and Harrison streets, southeast corner.....               | 18                   | 4                  | 1             |               | 31                               |
| Moore and Norton streets, northeast corner.....                 | 19                   | 4                  | 1             |               | 28                               |
| Moore and Kinney streets, southwest corner.....x                | 23                   | 4                  | 1             |               | 24                               |
| Mulberry street and alley north of Monument avenue.             | 14                   | 4                  | 1             |               | 68                               |
| Maple street, south side, sixty feet from Gas Works fence ..... | 15                   | 4                  | 1             |               | 58                               |
| Ninth street between Byrd and Arch streets (west side) .....    | 11                   | 4                  | 1             |               | 43                               |
| Ninth street between Canal and Byrd streets (west side) .....   | 21                   | 4                  | 1             |               | 33                               |
| Ninth street, 500 feet north of M street.....x                  | 25                   | 4                  | 1             |               | 25                               |
| N and Twenty-third streets, northeast corner.....x              | 6                    | 4                  | 1             |               | 22                               |
| N and Twenty-fourth streets, northeast corner.....              | 28                   | 4                  | 1             |               | 29                               |
| N and Twenty-fifth streets, northeast corner.....x              | 25                   | 4                  | 1             |               | 40                               |
| N and Twenty-sixth streets, southeast corner.....x              | 20                   | 4                  | 1             |               | 35                               |
| N and Twenty-seventh streets, southeast corner.....x            | 16                   | 4                  | 1             |               | 25                               |
| N and Twenty-eighth streets, southwest corner.....              | 15                   | 4                  | 1             |               | 19                               |
| N and Twenty-ninth streets, southeast corner.....               | 20                   | 4                  | 1             |               | 17                               |
| N and Thirtieth streets, southwest corner.....x                 | 15                   | 4                  | 1             |               | 15                               |
| N and Thirty-first streets, southwest corner.....x              | 15                   | 4                  | 1             |               | 15                               |

Sign x means branches on cross streets.

TABLE No. 9—CONTINUED.

*Fire Hydrants.*

| LOCATION   | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|--|----------------------|--------------------|---------------|---------------|----------------------------------|
| Nicholson and Colgin streets, southwest corner.....                  | 16                   | 4                  | 1             | ...           | 45                               |
| Nicholson and Hopkins streets, northwest corner.....                 | 16                   | 4                  | 1             | ...           | 42                               |
| Nicholson and Russell streets, northeast corner.....                 | 10                   | 4                  | 1             | ...           | 54                               |
| Nicholson and Erin streets, northeast corner.....                    | 14                   | 4                  | 1             | ...           | 46                               |
| Nicholson and Gilliam streets, southeast corner.....                 | 15                   | 4                  | 1             | ...           | 45                               |
| Orange and First streets, southwest corner.....                      | 25                   | 4                  | 1             | ...           | 32                               |
| O and Twenty-fourth streets, northwest corner.....                   | 24                   | 4                  | 1             | ...           | 25                               |
| O and Twenty-fifth streets, northwest corner.....                    | 25                   | 4                  | 1             | ...           | 24                               |
| O and Twenty-sixth streets, southwest corner.....                    | 20                   | 4                  | 1             | ...           | 25                               |
| O and Twenty-seventh streets, southeast corner.....                  | 12                   | 4                  | 1             | ...           | 25                               |
| O and Twenty-eighth streets, southwest corner.....                   | 19                   | 4                  | 1             | ...           | 21                               |
| O and Twenty-ninth streets, southeast corner.....                    | 8                    | 4                  | 1             | ...           | 21                               |
| O and Thirtieth streets, southwest corner.....                       | 10                   | 4                  | 1             | ...           | 21                               |
| Orleans street, east side Second street, near corporation line ..... | 60                   | 4                  | 1             | ...           | 36                               |
| Orleans and Fourth streets, southeast corner.....                    | 14                   | 4                  | 1             | ...           | 34                               |
| Orleans and Fifth streets, northeast corner.....                     | 12                   | 4                  | 1             | ...           | 40                               |
| Orleans and Sixth streets, southeast corner.....                     | 7                    | 4                  | 1             | ...           | 36                               |
| Orleans and Seventh streets, northwest corner.....                   | 22                   | 4                  | 1             | ...           | 38                               |
| Park avenue and Robinson street, southwest corner..                  | 14                   | 4                  | 1             | ...           | 63                               |
| Park avenue and Cedar street, southeast corner.....                  | 15                   | 4                  | 1             | ...           | 61                               |
| Park avenue and Sycamore street, southwest corner..                  | 12                   | 4                  | 1             | ...           | 65                               |
| Park avenue and Meadow street, southwest corner...                   | 7                    | 4                  | 1             | ...           | 68                               |
| Park avenue and Park street, southeast corner.....                   | 16                   | 4                  | 1             | ...           | 65                               |
| Park avenue and Vine street, southwest corner.....                   | 13                   | 4                  | 1             | ...           | 67                               |
| Park avenue and Linden street, southeast corner.....                 | 10                   | 4                  | 1             | ...           | 65                               |
| Park avenue and Shafer street, northwest corner...                   | 15                   | 4                  | 1             | ...           | 66                               |
| Park avenue and Harvie street, southeast corner...x                  | 12                   | 4                  | 1             | ...           | 65                               |
| Park avenue and Harrison street, southeast corner...                 | 21                   | 4                  | 1             | ...           | 65                               |
| Pulliam and Prentiss streets, southeast corner.....                  | 15                   | 4                  | 1             | ...           | 20                               |
| Preston and Fourth streets, southwest corner.....                    | 25                   | 4                  | 1             | ...           | 21                               |
| Preston and Fifth streets, southeast corner.....                     | 21                   | 4                  | 1             | ...           | 32                               |
| Preston and Sixth streets, southeast corner.....                     | 25                   | 4                  | 1             | ...           | 20                               |
| Preston and Seventh streets, northwest corner.....                   | 25                   | 4                  | 1             | ...           | 21                               |
| Pickett street, 60 feet north of Clay street.....                    | 6                    | 4                  | 1             | ...           | 30                               |
| P and Twenty-first streets, northwest corner.....                    | 15                   | 4                  | 1             | ...           | 35                               |
| P and Twenty-fifth streets, southwest corner.....                    | 25                   | 4                  | 1             | ...           | 17                               |
| P and Twenty-sixth streets, northeast corner.....                    | 9                    | 4                  | 1             | ...           | 23                               |
| P and Twenty-seventh streets, southwest corner.....                  | 12                   | 4                  | 1             | ...           | 20                               |
| P and Twenty-eighth streets, southeast corner.....                   | 10                   | 4                  | 1             | ...           | 20                               |
| P and Twenty-ninth streets, northeast corner.....                    | 9                    | 4                  | 1             | ...           | 15                               |
| P and Thirtieth streets, southwest corner.....                       | 10                   | 4                  | 1             | ...           | 16                               |
| Pleasants and Mosby streets, northwest corner.....                   | 12                   | 4                  | 1             | ...           | 28                               |
| Pleasants and Twenty-second streets, northwest corner .....          | 9                    | 4                  | 1             | ...           | 22                               |
| Q and Twentieth streets, northeast corner.....                       | ...                  | 4                  | 1             | ...           | 34                               |
| Q and Twenty-first streets, northeast corner.....                    | ...                  | 4                  | 1             | ...           | 32                               |
| Q and Twenty-second streets, northwest corner.....                   | ...                  | 4                  | 1             | ...           | 30                               |
| Q and Twenty-third streets, northwest corner.....                    | ...                  | 4                  | 1             | ...           | 31                               |
| Q and Twenty-sixth streets, northwest corner.....                    | 20                   | 4                  | 1             | ...           | 13                               |
| Q and Twenty-seventh streets, southwest corner.....                  | 22                   | 4                  | 1             | ...           | 16                               |
| Q and Twenty-ninth streets, northwest corner.....                    | 7                    | 4                  | 1             | ...           | 20                               |
| R and Twentieth streets, northeast corner.....                       | ...                  | 4                  | 1             | ...           | 38                               |
| R and Twenty-second streets, southwest corner.....                   | ...                  | 4                  | 1             | ...           | 33                               |
| R and Twenty-fourth streets, southwest corner.....                   | ...                  | 4                  | 1             | ...           | 28                               |
| R and Twenty-fifth streets, northwest corner.....                    | 15                   | 4                  | 1             | ...           | 25                               |
| R and Twenty-seventh streets, southwest corner.....                  | 7                    | 4                  | 1             | ...           | 22                               |
| R and Twenty-eighth streets, southwest corner.....                   | 11                   | 4                  | 1             | ...           | 24                               |
| Robinson and Beverly streets, northwest corner.....                  | 6                    | 4                  | 1             | ...           | 60                               |
| Road, east of Reservoir Lake, west side near Lake...x                | 14                   | 4                  | 1             | ...           | 60                               |

Sign x means branches on cross streets.



TABLE No. 9—CONTINUED.

*Fire Hydrants.*

| LOCATION  | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|---|----------------------|--------------------|---------------|---------------|----------------------------------|
| Robinson and Chaffin streets, southeast corner.....                           | 10                   | 4                  | 1             | ...           | 60                               |
| Robinson and Cary streets, southeast corner.....                              | 23                   | 4                  | 1             | ...           | 60                               |
| Robinson street and alley north of Grace, southeast corner .....              | 12                   | 4                  | 1             | ...           | 65                               |
| Robinson street and alley north of Monument avenue, east side .....           | 14                   | 4                  | 1             | ...           | 68                               |
| Rowland and Ivy streets, southwest corner.....                                | 9                    | 4                  | 1             | ...           | 69                               |
| Randolph and Taylor streets, southeast corner.....                            | 13                   | 4                  | 1             | ...           | 19                               |
| Randolph and Winder streets, northwest corner.....                            | 6                    | 4                  | 1             | ...           | 30                               |
| Randolph street, east side, at River View Cemetery...                         | 27                   | 4                  | 1             | ...           | 30                               |
| Randolph and Beverly streets, southwest corner.....                           | 9                    | 4                  | 1             | ...           | 21                               |
| Reservoir and Ashland streets, southeast corner.....                          | 15                   | 4                  | 1             | ...           | 28                               |
| Reservoir and Taylor streets, southwest corner.....                           | 11                   | 4                  | 1             | ...           | 24                               |
| Roane and Cabell streets, southeast corner.....                               | 11                   | 4                  | 1             | ...           | 25                               |
| Ross and Fourteenth streets, northwest corner.....                            | 20                   | 4                  | 1             | ...           | 44                               |
| Ross and Mayo streets, southwest corner.....                                  | 20                   | 3                  | 1             | ...           | 54                               |
| Soldiers' Home .....  | 20                   | 4                  | 1             | ...           | 64                               |
| Spring and Belvidere streets, northwest corner.....                           | 10                   | 4                  | 1             | ...           | 31                               |
| Spring street, south side, 300 feet east of Belvidere street .....            | 16                   | 4                  | 1             | ...           | 35                               |
| Spring and Pine streets, southwest corner.....                                | 13                   | 4                  | 1             | ...           | 24                               |
| Spring and Laurel streets, southeast corner.....                              | 22                   | 4                  | 1             | ...           | 20                               |
| Spring and Cherry streets, southeast corner.....                              | 30                   | 4                  | 1             | ...           | 33                               |
| Spring and First streets, southwest corner.....                               | 19                   | 4                  | 1             | ...           | 42                               |
| S street or Fairmount avenue and Nineteenth street, southwest corner .....    | ...                  | 4                  | 1             | ...           | 40                               |
| S street or Fairmount avenue and Twenty-first street, southwest corner .....  | ...                  | 4                  | 1             | ...           | 37                               |
| S street or Fairmount avenue and Twenty-third street, northwest corner .....  | ...                  | 4                  | 1             | ...           | 33                               |
| S and Twenty-eighth streets, southeast corner.....                            | 20                   | 4                  | 1             | ...           | 25                               |
| St. James and Bacon streets, southwest corner.....                            | ...                  | 4                  | 1             | ...           | 55                               |
| Second street, 200 feet north of Hospital street, east side .....             | 14                   | 4                  | 1             | ...           | 44                               |
| Second street, 767 feet north of Hospital street, east side .....             | 7                    | 4                  | 1             | ...           | 62                               |
| Sixth street, south of Marshall street (meat market) ..                       | ...                  | 3                  | ...           | 1             | 22                               |
| Sixth street, north of Marshall street (fish market) ..                       | ...                  | 3                  | 1             | ...           | 20                               |
| Sixth street between Leigh and Duval streets, southeast corner of alley ..... | 20                   | 4                  | 1             | ...           | 28                               |
| Seventh street, east side, 500 feet north of Leigh street .....               | 25                   | 4                  | 1             | ...           | 25                               |
| Seventeenth street, west side, 75 feet north of Franklin street .....         | 20                   | 4                  | 1             | ...           | 59                               |
| Seventeenth street, west side (fish market) north of Franklin street .....    | 20                   | 4                  | 1             | ...           | 58                               |
| Seventeenth street, west side, 150 feet north of Main street .....            | 25                   | 4                  | 1             | ...           | 57                               |
| Seventeenth and Brown streets, southwest corner....                           | 19                   | 4                  | 1             | ...           | 48                               |
| Seventeenth and Jay streets, southeast corner.....                            | 18                   | 4                  | 1             | ...           | 42                               |
| Seventeenth and Washington streets, southeast corner .....                    | 18                   | 4                  | ...           | 1             | 45                               |
| Seventeenth and Christian streets, southeast corner ..                        | 18                   | 4                  | ...           | 1             | 45                               |
| Seventeenth and Richards streets, southeast corner ..                         | 16                   | 4                  | 1             | ...           | 46                               |
| Seventeenth and Baldwin streets, southeast corner....                         | 18                   | 4                  | ...           | 1             | 46                               |
| Seventeenth and Lownes streets, southeast corner....                          | 18                   | 4                  | ...           | 1             | 62                               |
| Seventeenth and Accommodation streets, southeast corner .....                 | 18                   | 4                  | ...           | 1             | 61                               |
| Seventeenth and Hospital streets, southwest corner....                        | 12                   | 4                  | 1             | ...           | 57                               |
| State and Erin streets, northwest corner.....                                 | 14                   | 4                  | 1             | ...           | 40                               |

Sign x means branches on cross streets.

TABLE No. 9—CONTINUED.

*Fire Hydrants.*

| LOCATION   | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|--|----------------------|--------------------|---------------|---------------|----------------------------------|
| State and Gilliam streets, southwest corner.....x                          | 14                   | 4                  | 1             | ..            | 41                               |
| Tredegear Iron Works.....x   | 3                    | 3                  | ..            | ..            | 36                               |
| T and Twentieth streets, southwest corner.....x                            | ..                   | 4                  | 1             | ..            | 37                               |
| T and Twenty-third streets, southwest corner.....x                         | ..                   | 4                  | 1             | ..            | 30                               |
| T and Twenty-fourth streets, southwest corner.....x                        | 13                   | 4                  | 1             | ..            | 26                               |
| Taylor and Carter streets, southeast corner.....x                          | 10                   | 4                  | 1             | ..            | 13                               |
| Taylor and Cedar streets, northeast corner.....x                           | 25                   | 4                  | 1             | ..            | 61                               |
| Taylor and Washington streets, southeast corner....x                       | 10                   | 4                  | 1             | ..            | 12                               |
| Taylor and Lady streets, southwest corner.....x                            | 10                   | 4                  | 1             | ..            | 12                               |
| Tenth street, 430 feet south of Byrd street, east side..x                  | 20                   | 4                  | 1             | ..            | 50                               |
| Tenth street, east side, between Cary and Main streets.....x               | 25                   | 4                  | 1             | ..            | 27                               |
| Thirteenth street, south of Cary street, west side....x                    | ..                   | 4                  | 1             | ..            | 48                               |
| Thirteenth street, west side, 282 feet south of Canal street.....x         | 8                    | 4                  | 1             | ..            | 50                               |
| Thirteenth street (east) and Shockoe Warehouse....x                        | 13                   | 4                  | 1             | ..            | 42                               |
| Thirteenth street (at south end).....x                                     | 16                   | 4                  | 1             | ..            | 21                               |
| Thirteenth street between Main and Franklin streets, east side.....x       | 19                   | 4                  | 1             | ..            | 63                               |
| Thirteenth street, west side, 140 feet north of Ross street.....x          | 27                   | 4                  | 1             | ..            | 36                               |
| Twenty-fifth street, west side, north of Broad street (engine house).....x | 25                   | 4                  | 1             | ..            | 24                               |
| Tyler and Calhoun streets, southeast corner.....x                          | 12                   | 4                  | 1             | ..            | 32                               |
| U and Twenty-first streets, southeast corner.....x                         | ..                   | 4                  | 1             | ..            | 34                               |
| U and Twenty-second streets, southwest corner....x                         | ..                   | 4                  | 1             | ..            | 31                               |
| U and Twenty-third streets, southeast corner.....x                         | ..                   | 4                  | 1             | ..            | 34                               |
| Valentine's abattoir.....x   | ..                   | ..                 | ..            | ..            | 24                               |
| V and Twenty-third streets, northwest corner.....x                         | 12                   | 4                  | 1             | ..            | 24                               |
| Virginia Penitentiary (inside enclosures).....x                            | ..                   | 4                  | ..            | 1             | ..                               |
| Virginia Penitentiary (inside enclosures).....x                            | ..                   | 4                  | ..            | 1             | ..                               |
| Virginia Penitentiary (inside enclosures).....x                            | ..                   | 4                  | 1             | ..            | ..                               |
| Virginia Penitentiary (inside enclosures).....x                            | ..                   | 4                  | 1             | ..            | ..                               |
| Virginia Penitentiary (outside).....x                                      | ..                   | 4                  | ..            | 1             | 21                               |
| Virginia street, west side, near R. & D. Depot.....x                       | 25                   | 4                  | 1             | ..            | 55                               |
| Virginia street, and Mill street, northeast corner....x                    | 30                   | 4                  | 1             | ..            | 50                               |
| Venable and Seventeenth streets, northwest corner...x                      | 20                   | 4                  | 1             | ..            | 42                               |
| Venable and Eighteenth streets, southwest corner...x                       | 20                   | 4                  | 1             | ..            | 31                               |
| Venable and Mosby streets, northeast corner.....x                          | 20                   | 4                  | 1             | ..            | 20                               |
| Venable and Pickett streets, southeast corner.....x                        | 20                   | 4                  | 1             | ..            | 25                               |
| Venable and Scott streets, northeast corner.....x                          | 20                   | 4                  | 1             | ..            | 21                               |
| Venable and Jessamine streets, southeast corner.....x                      | 20                   | 4                  | 1             | ..            | 21                               |
| Venable and Tulip streets, northwest corner.....x                          | 20                   | 4                  | 1             | ..            | 20                               |
| Venable and Pink streets, southwest corner.....x                           | 20                   | 4                  | 1             | ..            | 20                               |
| Venable and Rose streets, northwest corner.....x                           | 20                   | 4                  | 1             | ..            | 21                               |
| Venable and Twenty-fifth streets, southwest corner...x                     | 20                   | 4                  | 1             | ..            | 21                               |
| West avenue and Lombardy street, northeast corner...x                      | 11                   | 4                  | 1             | ..            | 64                               |
| West avenue and Birch street, southeast corner.....x                       | 17                   | 4                  | 1             | ..            | 65                               |
| West avenue and Boyd street, northwest corner....x                         | 11                   | 4                  | 1             | ..            | 66                               |
| Wharf street and Old Dominion Steamship Co.'s lot...x                      | ..                   | 4                  | 1             | ..            | 54                               |
| Wharf street and Old Dominion Steamship Co.'s wharf.....x                  | ..                   | ..                 | ..            | 1             | 54                               |
| Williamsburg avenue and City Gas Works (in yard)....x                      | ..                   | 2                  | ..            | 1             | 46                               |
| Williamsburg avenue, southside, east of Gas Works...x                      | 26                   | 4                  | 1             | ..            | 50                               |
| Williamsburg avenue and Hague street, southeast corner.....x               | 16                   | 4                  | 1             | ..            | 52                               |
| Williamsburg avenue and Graham street, northeast corner.....x              | 17                   | 4                  | 1             | ..            | 39                               |
| Williamsburg avenue and Nicholson street, northwest corner.....x           | 8                    | 4                  | 1             | ..            | 52                               |

Sign x means branches on cross streets.

TABLE No. 9.—CONTINUED.

*Fire Hydrants.*

| LOCATION  | Length of<br>Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs.<br>per Square Inch |
|---|-------------------------|--------------------|---------------|---------------|-------------------------------------|
| Williamsburg avenue, 20 feet north of Denny street..                    | 20                      | 4                  | 1             | . . .         | 46                                  |
| Williamsburg avenue and State street, northeast<br>corner . . . . .     | 17                      | 4                  | 1             | .             | 39                                  |
| Williamsburg avenue and Louisiana street, southeast<br>corner . . . . . | 27                      | 4                  | 1             | . .           | 40                                  |
| Williamsburg avenue and Orleans street, northwest<br>corner . . . . .   | 11                      | 4                  | 1             |               | 39                                  |
| Williamsburg avenue and Lester street, southeast<br>corner . . . . .x   | 18                      | 4                  | 1             | . . .         | 47                                  |
| Williamsburg avenue and Ash street, southeast<br>corner . . . . .       | 12                      | 4                  | 1             | . .           | 35                                  |
| Williamsburg avenue and Elm street, southwest<br>corner . . . . .       | 18                      | 4                  | . . .         | 1             | 35                                  |
| Williamsburg avenue and Maple street, northwest<br>corner . . . . .     | 25                      | 4                  | 1             | . . .         | 48                                  |

Total number fire hydrants, December 31, 1908—893.

Sign x means branches on cross streets.

\*There are thirteen fire hydrants in the Tredegar Works.

*List of Names Having Use of City Water Free December 31, 1908.*

|  |                    |
|--|--------------------|
| City Jail .....  | \$ 1,041 55        |
| Cemeteries (four) .....                                | 300 00             |
| Valentine Museum .....                                 | 25 00              |
| Drinking fountains (twenty-two) .....                  | 3,300 00           |
| Fire hydrants, (\$93 at \$25.00) .....                 | 22,325 00          |
| Churches (sixty-two) .....                             | 1,240 00           |
| Male Orphan Asylum .....                               | 91 08              |
| Fanfiles (two hundred and twenty-seven) .....          | 1,135 00           |
| Board of Health, sprinkling and flushing .....         | 600 00             |
| City carts, street sprinkling .....                    | 300 00             |
| Confederate Museum .....                               | 40 00              |
| Cleaning streets .....                                 | 500 00             |
| Private fire service .....                             | 500 00             |
| New Reservoir Lake, road sprinkling, etc.....          | 1,500 00           |
| Street car companies sprinkling tracks, estimated..... | 241 23             |
| <b>Total .....</b>                                     | <b>\$30,168 92</b> |

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